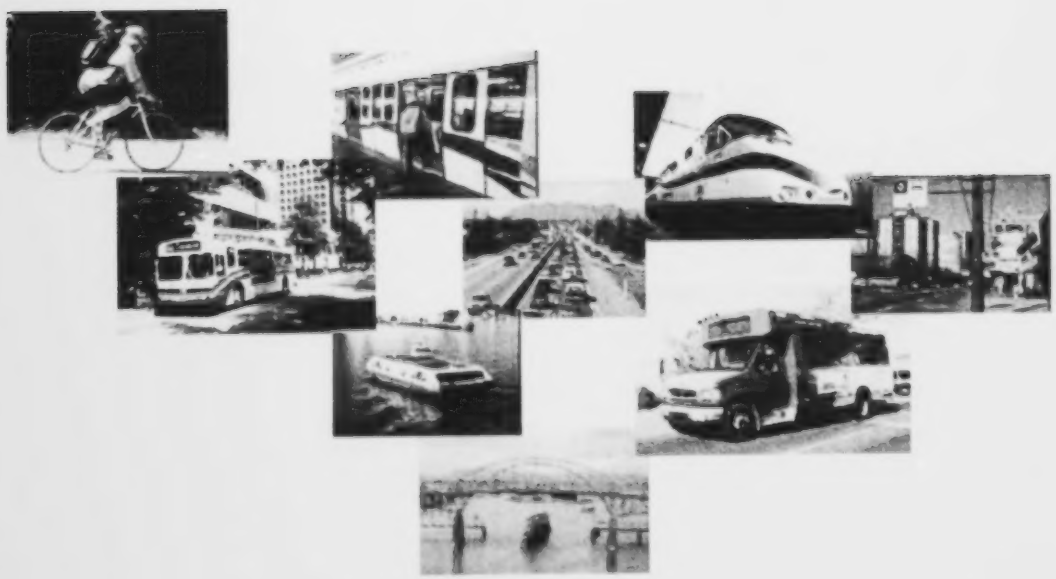
Greater Vancouver Transportation Authority

2005 - 2007 Three-Year Plan & 10-Year Outlook

Strategic Transportation Plan Amendment

December 2003



TRANS LINK

PREFACE

Since the release of the earlier draft of this plan presented as a Discussion Paper in October 2003, there has been an extensive stakeholder consultation process that has resulted in numerous changes and refinements to this document. The process involved the region's residents, municipalities, key stakeholder interest groups, as well as the Greater Vancouver Regional District (GVRD), and has shaped the policies and projects proposed by the Three-Year Plan.

Three urban transportation forums, a Transportation Outlook Roundtable, seven public meetings and fourteen municipal council presentations have also provided feedback. The plan development has also been influenced by the Greater Vancouver Transportation Authority's Internet-based model (*www.translink.bc.ca*), which allowed 12,000 participants the opportunity to develop their own visions for the regional transport system in 2013 and suggest funding sources.

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EXECUTIVE SUMMARY

This document presents a specific plan for the actions to be taken between 2005 and 2007 (Three-Year Plan), and places it within the context of a 10-year outlook to 2013 (10-Year Outlook). The actions outlined for the Three-Year Plan constitute an amendment to the existing Strategic Transportation Plan (STP) for the 2005-2007 period.

The Three-Year Plan and 10-Year Outlook recognize the importance of providing attractive transit services that present a real option to automobile use, while also addressing the mounting gridlock on our roads and bridges, particularly to ease the movement of goods and services.

The 10-Year Outlook sets the stage for a discussion of which transportation projects and initiatives will help us build a region that meets future needs within the context of the Greater Vancouver Regional District's (GVRD) *Livable Region Strategic Plan* (LRSP). In 2004, the Greater Vancouver Regional Transportation Authority (GVTA) – also known as TransLink - will be starting work on a 25-30 year plan, which will be undertaken with the GVRD at the same time as the LRSP is revisited and updated.

The longer-term plan for transportation will be developed in conjunction with other extensive long-term regional planning initiatives. Since 2001, the GVRD has been developing the Sustainable Region Initiative (SRI), a planning framework to move the region towards social, economic and environmental sustainability. The Outlook proposes a balanced approach with a mix of strategies that will meet a number of objectives including:

- Make transit a real option
- Reduce gridlock especially for goods movement
- Maximize economic potential
- Maintain and enhance the environment
- Share benefits and costs equitably

In addition to these objectives, the actions outlined in the Three-Year Plan and 10-Year Outlook further advance the GVTA's support for the regional growth management strategy, the *Air Quality Management Plan* (AQMP) and the regional economy, as outlined in the main document.

The investments planned to be in place for the 2010 Olympics, and the sustainability theme of the Olympics itself, provide a focus for a collective effort to move ahead. The 2010 Olympics will allow the region to showcase many of these improvements. It offers a unique opportunity to provide a wide range of travel choices that people might not ordinarily choose and, in doing so, helps to shape future travel behaviour.

While there are many opportunities to prosper, today the region's attractiveness as a place to live or to operate a business is being threatened by growth in traffic congestion and its related impacts on the economy, the environment and the quality of life that residents cherish.

An extensive stakeholder consultation process involving the region's residents, municipalities, key stakeholder interest groups and the GVRD has shaped the policies and projects proposed in the Three-Year Plan and 10-Year Outlook. Three urban transportation forums, the Transportation Roundtable, seven public meetings and numerous municipal council presentations and other stakeholder meetings have shaped these STP amendments. The plan has also been influenced by the results of the public input via the GVTA's Internet-based model that allowed 12,000 participants the opportunity to develop their own visions for the regional transport system in 2013 and suggest funding sources.

In addition, the GVTA commissioned public opinion research. This showed that 69% of GVRD residents in October and 68% in November support (strongly and somewhat) making the transportation improvements in the 10-Year Outlook, using the funding sources outlined in the Three-Year Financial Strategy.

Overall, the plan will start to move the region to higher market share for transit, help to stabilise traffic speeds, support the *Livable Region Strategic Plan* and address environmental, economic and social concerns.

STP AMENDMENTS/ACTIONS TO 2007

The following outlines the specific actions that form part of the amendment to the current STP.

NEW BUS SERVICES

More Service in Metropolitan Core

- Increase frequency on high demand routes in the core communities;
- Introduce new routes to serve new developments in the core

Higher Frequency in High Demand Corridors

- Expand 10 minute peak period routes to suburban municipal and regional town centres and in higher density corridors linking these centres.

New Regional Centre Connecting Services

- Introduce new suburb-to-suburb links connecting Burnaby and North Vancouver, Maple Ridge and Langley via the new Fraser River Crossing, and Coquitlam and Surrey.

Rapid Bus Service (B-Line)

- Introduce one new rapid bus on a high density urban corridor.

Community Shuttles

- Expand Shuttle services across the region to enhance service frequency and area coverage in suburban areas, and to continue to improve cost efficiency;
- Provide all sub-areas of the region with Community Shuttles by 2007.

Expand Services for U-Passes

- Implement bus service improvements for existing SFU and UBC U-Pass Programs and new U-Pass programs introduced between 2006-7.

Expand NightBus Services

- Expand NightBus service in high demand corridors subject to the results of evaluating the current pilot project.

New Inter-Regional Services

- Negotiate inter-regional transit service improvements, subject to appropriate funding agreements.

HandyDART

- Add 3% service expansion per annum with 24 more vehicles by 2007;
- Complete an accessible transit Strategic Plan by 2006.

Area Transit Plans

- Complete a UBC/City of Vancouver plan by early 2005;
- Complete Area Transit Plans for South of the Fraser and Richmond by 2007.

BUS FLEET AND FACILITIES

Existing Buses

- Replace electric trolley fleet with new trolleys between 2005 and 2007;
- Replace 134 diesel buses with new buses;
- Replace 110 HandyDART vehicles;
- Replace 3 Community Shuttle vehicles;
- Re-introduce 50 Compressed Natural Gas buses and replace older diesel buses.

New Buses

- Expand bus fleet from approx 1,200 in 2003 to approximately 1,400 by 2007.

Reducing Bus Emissions

- Start to acquire/evaluate a range of vehicle types as part of the fleet program, including hybrid combustion/electric vehicles.

Bus Facilities

- Determine the optimum service delivery strategy for all North Shore services in 2004;
- Build additional bus storage capacity on North Shore in 2007 to replace North Vancouver operating depot;
- Replace the Oakridge Transit Centre in 2005 with a new facility in the City of Vancouver;
- Begin construction of a new heavy maintenance facility.

RAPID TRANSIT

Richmond-Airport-Vancouver

- Complete consortium selection processes, e.g. "Best and Final Offer" (BAFO) in 2004;
- Initiate construction in 2005;
- Commit a total of $300 million[1].

Northeast Sector

- Undertake municipal and community consultation and select preferred route and technology combination in early 2004;
- Complete detailed design, consultation and commence construction as soon as possible;
- Commit $400 million to the project;
- Seek provincial and federal contributions of at least $170 million each for the NES line.

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[1] *$372 million with inflation and interest during construction.*

Expo & Millennium Lines

- Work with the province to complete Vancouver Community College station on the Millennium SkyTrain line (2005);
- Provide a new Dunsmuir Street entrance to Granville Station (2005);
- Increase SkyTrain capacity by 5% at peak periods to alleviate crowding by 2005;
- Continue to upgrade lighting, access and facilities at SkyTrain stations during the 2005-2007 period.

Rapid Transit – west from Commercial Drive

- Undertake studies by the end of 2005 of alternatives to identify the preferred option and phasing for rapid transit west from Commercial Drive;
- Prepare a plan for financing the extension.

West Coast Express

- Add new stations in the Albion area of Maple Ridge and North Burnaby by the end of 2007;
- Expand park and ride facilities at Maple Ridge Way and Port Coquitlam;
- Acquire a spare WCE locomotive to replace the currently leased spare locomotive;
- Expand TrainBus service in the mid-day and weekends;
- Introduce bus service from Langley, using the new Fraser River crossing to Maple Meadows Station;
- Provide bus connections to new North Burnaby Station;
- Determine the need for a possible 6th WCE train, within the context of the results of the NES Rapid Transit studies.

King George Busway

- Begin planning and design work on the King George Busway and seek funding contributions from senior government.

MARINE PASSENGER SERVICES

SeaBus

- Examine condition of existing vessels and prepare budget for possible refurbishment;
- Commission the design for a third SeaBus and possible replacement vessels.

Burrard Inlet Ferries

- Complete feasibility of Burrard Inlet ferry services with 75-125 passenger vessel capacity;
- Introduce up to two new Burrard Inlet ferry services, depending on their financial and technical feasibility.

Fraser River Ferries

- Review and establish feasibility of passenger marine services along/across the river between key destinations;
- Determine the future of the Albion Ferry in 2004.

NEW TRANSIT SERVICE DESIGN GUIDELINES

- Implement new Transit Service Design Guidelines starting in 2004;
- Adjust transit service to respond to the new guidelines to make service simpler, more frequent, reliable and convenient, comfortable and efficient.

ROADS

Major Regional Capital Projects:

- Build a third crossing of the Fraser River between Langley and Maple Ridge with the estimated cost of $600m to be paid 100% from tolls;
- Subject to municipal approvals and agreements, cost-sharing with other governments where possible and, to the extent permitted under legislation, invest up to $236m in the following projects:
  - North Fraser Perimeter Road
  - Fraser Highway Widening
  - Dollarton Bridge Twinning
  - Coast Meridian with overpass to Kingsway
  - 204th Street Overpass
  - Main Street Widening (North Vancouver)
  - Murray-Clarke Connector
  - Extension of David Avenue to connect with the Coast Meridian project
- Seek cost-sharing for all major capital projects from the provincial and federal governments and other sources where applicable.

Identifying Future Regional Road Projects

- As part of the process to prepare the long range (25 – 30 years) transportation plan and in accordance with the current or approved and, updated Strategic Transportation Plan and the regional growth management strategy, identify and prioritize other potential road investments for the 2008 – 2013 period, in partnership with senior government and member municipalities;

- Apply the proposed updated TransLink Transportation Evaluation Guidelines to evaluate future candidate projects.

Bridges & Structures:

- Continue to rehabilitate and maintain GVTA-owned bridges (i.e., Pattullo, Knight Street, and Westham Island) - $32.5 million;
- Consider the expansion of the Major Road Network (MRN) Capital Program, or other appropriate funding programs, to include structures on the MRN within the broader context of GVTA's roles and responsibilities.

Minor Regional Road Capital

- Allocate cost-share funding of $60 million for localized road upgrades, leveraging a total of $120+ million of improvements;
- Invest in local projects including widenings, intersection improvements, traffic signals, pedestrian and bicycle facilities, structures and transit related improvements;
- Review road capital eligibility criteria to consider providing municipalities greater flexibility to redirect funds to both cycling and transit priority where a regional benefit can be demonstrated;
- Review jointly with municipal partners, the overall efficiency of the MRN at key locations and identify opportunities to improve network performance;
- Develop, with municipal partners, several MRN corridor management plans (including a comprehensive review of the Barnet-Lougheed Corridor, from Port Moody to Pitt Meadows, to identify capital needs in this area post 2007);
- Develop a High Priority Vehicle Plan and implementation strategy jointly with municipal partners and the province;
- Commit approx. $27 million annually, based on $12,000 per lane-km of MRN plus inflation (e.g. consumer price index - CPI), to fund the operations, maintenance, and rehabilitation of the MRN in each municipality;
- Undertake a review of the Operations Maintenance and Rehabilitation (OMR) funding provided to municipalities to determine if adjustments are required.

PROVINCIAL ROAD PROJECTS

- The GVTA will work with the Province on the Gateway and other project planning and policy development programs, on the basis that continued involvement or support by the GVTA of specific project approvals or implementation, for those projects outside the scope of this plan or the LRSP, would require an amendment to this Strategic Transportation Plan;
- In working with the province on their development of road projects, GVTA will place a priority on the South Fraser Perimeter Road and improvements at the Pitt River crossing to support the Fraser River Crossing;
- The GVTA will seek to establish a collective planning process with the province of both the Major Road Network and the Provincial Highway System to ensure that both systems support the *Livable Region Strategic Plan*.

TRANSPORTATION DEMAND MANAGEMENT

Road User Priorities

- Develop agreements with the province and municipalities to develop and implement a process to determining High Occupant Vehicle (HOV) lane needs and regulations for all HOV facilities in the region, giving due consideration to the fact that needs may vary across the region and between facilities;
- Identify and prioritize road user priorities as part of the development of the new long range transportation plan;
- Include practical means to provide priority treatment to both HOV and High-Priority Vehicles, goods vehicles and buses ahead of single-occupant vehicles;
- Ensure that all major capital projects funded in whole or in part by GVTA include TDM measures, unless such measures are impractical.

Transit Priority Measures

- Commit $3 million in annual funding for transit priority (signals, bulges, lanes, etc.) to improve speed and reliability of bus services;
- Develop a Regional High Occupancy Lane /Transit Priority Implementation Strategy by December 2004, with extensive deployment by 2007;
- Complete queue jumper lanes at the Port Mann and Second Narrows Bridges by 2007;
- Start work on northbound queue jumper lanes on Highway #99;

- Work with municipalities, especially the City of Vancouver, where the need is greatest, to significantly expand bus lanes and other transit priority measures;
- Target an expansion of transit priority measures (e.g. bus lanes) to be in place on the following routes/streets by December 2005:
  - Hastings
  - Broadway
  - Burrard Street
  - Main Street
  - 41st Avenue
  - Willingdon Avenue
  - North Road – Clarke Road
  - St. Johns Street
  - Guildford Way-Ioco Road
  - Mountain Highway
  - Cotton Drive – Main Street (N. Vancouver)

Commuting Options Program

- Work with employers through the OnBoard program to identify, promote, and facilitate the implementation of sustainable transportation choices at the employer's worksite such as:
  - Transit (Employer Pass Program)
  - Ridesharing (carpooling, carpooling)
  - Commuter Car Share (Station Car)
  - Cycling / walking
  - Teleworking
  - Shuttle buses
  - Parking management strategies
  - Office Relocation

Employer Pass Program

- Continue to promote the Employer Pass Program, which provides a 15% discount on annual transit passes to organizations enrolling with 25 or more employees.

Ridesharing (carpooling, vanpooling)

- Work with Jack Bell Foundation (JBF) RideShare to significantly increase the number of cars and vanpools operating in and around the GVRD. Measures to include:
  - Development of annual marketing plan
  - Target rates for annual program growth
  - Annual customer satisfaction surveys
  - Annual operational reviews

Commuter Car Share (Station Car Program)

- Institute a pilot program in 2004 to provide commuters who live or work near to a SkyTrain station with a means to get to and from home and work via shared vehicles and conveniently located SkyTrain stations.

Granville Mall

- Work with the City of Vancouver to redesign Granville Street downtown to improve transit and pedestrian efficiency and comfort.

Pass Programs

- Expand the U-Pass Program to all existing public post secondary schools now in the FastTrax Pass Program subject to student referenda;
- Introduce a pilot Community Pass Program similar to U-Pass Program for up to two sustainable community areas;
- Provide better customer information through enhanced internet, cell phone and personal digital assistant (PDA) services, as well as expanded real-time information at transit facilities.

Urban Transportation Showcase

- Implement the Sustainable Region Showcase for Greater Vancouver that includes:
  - Main Street Transit Corridor Development
  - Central Valley Greenway Cycling Facility
  - Development of 'transit villages' around Broadway, Metrotown and Surrey Central Stations
  - Pilot test TravelSmart residence-based trip reduction program, providing individualized travel information

Regional Parking Strategy

- Work with the GVRD and municipalities to develop a regional parking strategy by no later than July 2004 for implementation in 2005, that includes a review of:
  - Bylaw provisions for the minimum and maximum parking requirements for new or renovated developments throughout the region
  - Regulations for managing off-street parking, including preferential parking for car/vanpools and motorcycles
  - The regulation of on-street parking on major arterials
- Seek legislative amendments to the *GVTA Act* to make the application of the existing provisions regarding stall or area parking taxes practical and

to allow issues, such as enforcement, collection and exemptions to be readily addressed;

- Introduce an area or stall based parking tax for non-residential parking in January 2005.

Regional Tolling Policy

- Begin work in 2004 to define a detailed tolling policy for the region that allows the flexibility for the region to eventually evolve to a congestion pricing/tolling system for the entire region;
- Work to achieve municipal and provincial consensus on the tolling polices to be applied to any facilities in the region by 2006;
- Explore other forms of road-user fees, including vehicles charges, as necessary.

Development Review

- Develop a process, in consultation with municipalities and the GVRD, to define and review 'major developments', as provided for in the *GVTA Act*.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

- Install automatic vehicle location equipment for buses operating on the #97B Line and #99 B-line services to improve reliability;
- Install automatic vehicle location technology for new trolley buses to improve reliability;
- Install automatic passenger counters on 15% of bus fleet to improve data for scheduling and planning of services and to improve reliability of service;
- Prepare smart card business case study to review benefits and costs of this form of electronic payment media for implementation in 2005-2007;
- Update ITS strategic plan, prepare telecommunications plan and develop conceptual program for multi-agency traffic management centre by 2005;
- Implement projects in phased programs for ATIS, regional signal coordination and data warehousing; prepare SmartCard business case by 2005;
- Implement bus rapid transit on Main Street Priority Corridor in 2006-2007.

BICYCLES

REGIONAL FACILITIES

- Invest $4, 5 and 6 million in funding annually in 2005, 2006 & 2007, respectively;
- Provide majority or 100% GVTA funding for significant regional facilities, such as the BC Parkway or Central Valley Greenway;
- Provide 50% cost-share funding with municipalities on new cycling facilities;
- Build approximately 150 kilometres of new bike facilities;
- Plan and design facilities to overcome major road or natural barriers to cyclists;
- Ensure that all major capital projects funded in whole or in part by the GVTA are reviewed for their potential to facilitate greater cycling, including the provision of cycle paths on the RAV and FRC bridges, as well as other bridge upgrades.

Programs

- Increase annual funding for information and education programs to encourage more and safer bicycling among all age groups;
- Implement an interactive web based bicycle route map by 2007;
- Distribute information on safe cycling practices to schools and work places.

POWERED TWO-WHEEL VEHICLES

- Work with the B.C. Coalition of Motorcyclists, ICBC and other agencies to determine the relative role and priority that should be given to motorcycles and other powered two-wheel vehicles;
- Review matters, such as road use priority, parking provisions, safety and emissions and noise.

PLANNING INITIATIVES

Coordinated Planning

- Encourage all levels of government to approach the transportation system in the GVRD as a coherent whole and to institute mechanisms for the coordinated planning of all facilities;
- Work towards greater coordination of municipalities to facilitate joint, municipally led Area Transportation Plans for sub-areas of the region (e.g. Northeast Sector, Langley area, North Shore), to allow a more integrated approach to sub-regional planning and establishing capital priorities.

Project Evaluation

- Update the GVTA Transportation Evaluation Guidelines, with municipalities and the Province

- Work to ensure that the evaluation of all future major capital projects by all levels of government are made on a consistent basis, including both roads and significant transit capital;
- Work with all levels of government to standardize all transportation planning practices affecting Greater Vancouver.

Transportation System Monitoring

- Develop and fully resource a monitoring program capable of providing comprehensive transport system information to guide investment decisions by all levels of government;
- Ensure that the program is adequate to support meaningful system and service performance monitoring on a regular basis;
- Implement a regular cycle of regional Origin – Destination and other surveys at intervals of no greater than every five years to monitor trends and system needs.

Goods Movement

- Continue to work with Transport Canada, the province, the Greater Vancouver Gateway Council and others to seek ways to improve the region's competitiveness;
- Ensure that the needs of goods movement and the regional economy are considered in all GVTA investments;
- Improve the means to monitor, plan and forecast for goods movement, including cross-border travel.

UPDATE TO LRSP, AQMP AND NEW LONG-RANGE TRANSPORTATION PLAN

- Work with the GVRD to review and update the *Livable Region Strategic Plan* (LRSP) within the context of the Sustainable Region Initiative (SRI);
- Develop a new long-range transportation plan (25–30 year horizon) in support of the updated LRSP and GVRD *Air Quality Management Plan* (AQMP) by 2006. This will replace the 10-Year Outlook and *Transport 2021*;
- Encourage the province and municipalities to be fully involved in, and committed to, the process;
- Target for completion is mid 2005.

AirCare

- Determine future for AirCare (post 2006) by no later than December 2004.

SAFETY AND SECURITY

- Increase the authority of GVTA Security through the formation of a designated policing unit that will provide the authority for drug enforcement and the power to exercise warrants;
- Increase the Security complement to provide more presence on the transit system;
- Seek provincial authority for the GVTA to collect and retain fine revenues;
- Implement a community outreach program;
- Improve lighting on the Expo line and bus loops.

FINANCE

Fares

- Increase fares to generate approximately $15 million annually. This represents a 6% increase, which will equal inflation between 2002 and 2005;
- Undertake a consultation process in early 2004 to determine the details of fare changes.

Parking

- Increase parking taxes in 2005 to generate approximately $26 million annually. Parking taxes will be generated through a tax on non-residential parking areas/stalls;
- The GVTA will, by July 2004, develop a parking tax strategy for implementing the region-wide parking area/stall tax that will include consultation with stakeholders and is based on the principle of regional equity and supports the policy directions of the *Livable Region Strategic Plan* with a target implementation date of 2005.

Property Tax

- Increase property taxes on the basis of assessments to generate $58 million annually. This increase will equate to approximately $20 per $100,000 of assessed value for residential property and approximately $52 per $100,000 of assessed value for commercial property;
- Seek Amendments to the *GVTA Act* to enhance the flexibility and collection of existing revenue increases available to the authority.

Reserves

- Maintain an operating reserve equivalent to 10% of the operating budget over the plan period.

FUNDING BEYOND 2007

- No later than mid-2006, develop a new financial strategy, which excludes further reliance on property tax;

- In the event that federal funding does not materialize, fares will continue to be increased with inflation and parking taxes or other transportation-related sources will be introduced or increased to fund the 2005-2007 commitments.

1. INTRODUCTION

Overview

This document presents a specific plan for the actions to be taken in period between 2005 and 2007 (Three-Year Plan), and places it within the context of a 10-year outlook to 2013 (10-Year Outlook). The actions constitute an amendment to the GVTA's existing Strategic Transportation Plan (STP) that expires in 2005. Combined with the last year of the Greater Vancouver Transportation Authority's (GVTA) current three-year plan, it serves as an amendment to the STP, that defines all the actions to be taken between 2004 and 2007 and replaces the content of the current STP.

What do we want for our region in 2013?

Our region is young and still growing, giving us the ability to think now about how its future will unfold. Greater Vancouver can become the place that people think about when they envision a sustainable region where a strong economy, a clean environment and healthy communities coexist. We have the opportunity to showcase our success, first, when we host the United Nations World Urban Forum in 2006, then in 2010 at the first-ever, sustainable Olympics.

The GVTA (Greater Vancouver Transportation Authority) – also known as TransLink – was created to provide a safe, reliable and efficient transportation system that supports the region's strategies for accommodating growth, economic development and protecting air quality. Our current plan expires in 2005, but we need to update it now to meet today's transportation needs and set the direction for a longer term. This document presents a specific plan for the period between 2005 and 2007 (Three-Year Plan), and places it within the context of a 10-year outlook to 2013 (10-Year Outlook). The Three-Year Plan component of this document and the actions described represent a formal amendment to the existing Strategic Transportation Plan that expires in December 2005 and extends that plan until December 2007.

The Three-Year Plan and 10-Year Outlook recognize the importance of providing attractive transit services that present a real option to automobile use, while also addressing the mounting gridlock on our roads and bridges, particularly to ease the movement of goods and services.

The 10-Year Outlook sets the framework for the stated direction and which transportation projects and initiatives will help us build a region that meets future needs within the context of the Greater Vancouver Regional District's (GVRD) *Livable Region Strategic Plan* (LRSP). In 2004, the GVTA will be starting work on a 25-year plan, which will be undertaken with the GVRD at the same time the LRSP is revisited and updated.

The Outlook proposes a balanced approach, with a mix of strategies that will meet a number of objectives including:

- Make transit a real option;
- Reduce gridlock especially for goods movement;
- Maximize economic potential;
- Maintain and enhance the environment;
- Share benefits and costs equitably.

The investments planned to be in place for the 2010 Winter Olympics, and the sustainability theme of the Olympics itself provides a focus for a collective effort to move ahead. The 2010 Olympics will allow the region to showcase many of these improvements. It also offers a unique opportunity to provide a wide range of travel choices that people might not ordinarily choose and, in doing so, will help to shape future travel behaviour.

While there are many opportunities to prosper, today the region's attractiveness as a place to live or to operate a business is being threatened by growth in traffic congestion and its related impacts on the economy, the environment and the quality of life that residents cherish.

This document initially reviews both the challenges and opportunities that the region faces, as it deals with the economic, environmental and social implications of the transportation system. The 10-Year Outlook presents a scenario of where the region could be in 2013, if it adopts a clear vision and outlines how that vision can further the regional economy, environment and improve social equity by expanding travel choices. The Three-Year Plan identifies specific actions in a

strategy to improve and fund the system in the period from 2005 to 2007.

A New Long Range Transportation Plan in 2005

One of the Three-Year Plan's key commitments is that the GVTA will develop a new long-term transportation plan in concert with the GVRD's *Livable Region Strategic Plan* (LRSP), which will extend the vision for transportation in the region outlined in the 10-Year Outlook to 2030. The requirement for such a long-term plan has been a common theme during the consultation process. It has been particularly strongly expressed by stakeholders on the GVTA's Outlook 'Round Table'.

Work on a new long-range plan will begin in 2004, with completion in 2005. The plan will chart a course for transportation in the region to 2030 and the process will seek the active cooperation of all levels of government in plan preparations and its resulting priorization of programs, policies and projects.

This will help to ensure that transportation priorities and projects being advanced by all levels of government serve to support the broader regional growth management strategy and the regional *Air Quality Management Plan* (AQMP).

The longer-term plan for transportation will be developed in conjunction with other extensive long-term regional planning initiatives. Since 2001, the GVRD has been developing the Sustainable Region Initiative (SRI), a planning framework to move the region towards social, economic and environmental sustainability. The SRI will recommend implementation initiatives in the fall of 2003, while guiding the development of the region's growth management strategy (the LRSP) and AQMP, as well as other plans and programs.

2. REGIONAL CONTEXT

This section outlines the broader regional planning context and the challenges presented by regional growth that have significantly influenced the preparation of this plan.

Policy and Planning Challenges

The *Livable Region Strategic Plan* (LRSP), was adopted by the GVRD Board in January 1996 and set out four key strategies:

- Protecting the green zone;
- Building complete communities;
- Achieving a compact metropolitan area;
- Increasing transportation choices.

The LRSP strategies were conceived as necessary components to work together and are interdependent to achieve the goal of a livable region.

The specific strategy for achieving the transportation choice component of the LRSP comes from the 1993 *Transport 2021 Long Range Transportation Plan*, which included three related strategies:

- Manage land use;
- Manage transportation demand;
- Manage transportation supply.

These three strategies were adopted to provide significant efficiencies in the movement of both goods and vehicles, while offering a substantially more attractive and efficient system that would achieve a 17% transit market share of rush-hour travel in 2006, compared to 11% today.

While the plans from the early 1990's were well conceived, progress has been mixed on actions in each of these areas.

Land Use

The LRSP has had significant successes in directing the majority of the region's population growth to the Growth Concentration Area (GCA) and shifting the housing mix towards apartments and townhouses. In addition, regional town centres have been able to attract higher density residential and commercial land uses.

On the other hand, rather than office employment being focused in the town centres, it is becoming increasingly dispersed through the development of business parks[2]. Consequently, progress in advancing the concept of "complete communities" has not been as extensive as planned.

Demand-Side Management

There has been some expansion of carpool and vanpool initiatives and the implementation of some of the high occupancy vehicle (HOV) measures identified in *Transport 2021*. However, there have been no measures to fund the transportation system and influence demand, such as bridge tolls and parking strategies. Similarly, there has been little implementation of the policies to provide goods movement vehicles with greater priority on the region's roads.

Supply - Road Expansion

Several road projects have been completed, such as the Barnet Highway HOV facility and HOV lanes on Highway #1, and others, including the North and South Fraser Perimeter Roads, are in the planning stages. Nevertheless, while the earlier plans did not outline detailed implementation timelines, overall, it is estimated that the region already has as much as a $1 billion+ backlog of road investments today, and additional significant investments will be required over the next two decades.

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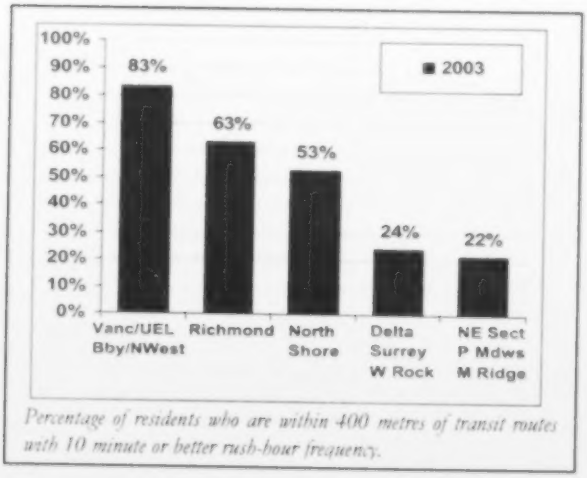
[2] *In the last decade 50% of new office jobs have gone into suburban office parks, while only 7% have been located in regional town centres outside Vancouver.*

Supply - Transit Expansion

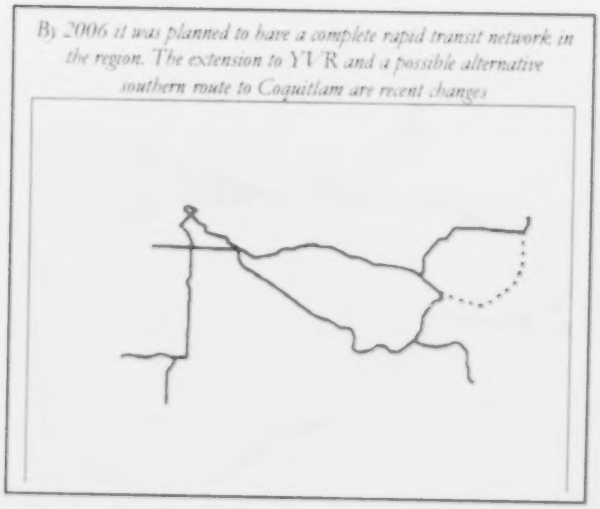
Transport 2021 anticipated bus fleet growth from approximately 950 buses in 1993 to around 1,800 in 2006. Neither the bus fleet nor bus service has been on-track to meet that target and, in many parts of the region, transit service is not at levels to offer the majority of residents a real alternative to the automobile. Today, the fleet size consists of approximately 1,200 buses.

The plans called for three rapid transit lines to be built by 2006 (Central Broadway to Lougheed Mall, New Westminster to Coquitlam Centre and Richmond to Vancouver). The province has constructed the Millennium Line[3], however the critical connections to both Coquitlam Centre, to the east, and the Central Broadway area (connecting to a Richmond-Airport-Vancouver line) to the west, remain to be built.



Percentage of residents who are within 400 metres of transit routes with 10 minute or better rush-hour frequency.

By 2006 it was planned to have a complete rapid transit network in the region. The extension to YVR and a possible alternative southern route to Coquitlam are recent changes



Air Quality

The *GVTA Act* requires that the GVTA support the region's *Air Quality Management Plan* (AQMP). Adopted by the GVRD in 1994, the AQMP identifies a series of measures designed to reduce emissions of air contaminants, with special emphasis on the precursors to ozone and particulate formation. While the air quality in the region is generally good and considered to be improving, there are health concerns associated with ozone in the Fraser Valley and, increasingly, with the impact of diesel emissions in the vicinity of major truck routes. As local industrial sources of pollution (oil refineries, forest products industries) have closed, transportation has become a more significant source. Although control measures such as cleaner fuels and more stringent engine emission regulations are having an effect on road transportation, emissions from ships – which are not subject to regional controls – are projected to become a more significant source of air pollution.

Reduction in air pollution was one of the major benefits expected from the *Livable Region Strategic Plan* and its associated transportation plan (*Transport 2021*). The goal was to cut in half the emissions of smog forming contaminants and carbon monoxide attributed to car use – mainly through better engine technology, but also by reducing car dependence. There has been significant improvement in engine technology, and fuel specifications have also been tightened; however, the share of automobile use in the region has remained the same, at around 74% of all trips. If the programs in the Outlook are adopted, it is expected that trips made by transit, walking and cycling will increase, which will help reduce emissions of both local air contaminants and greenhouse gases.

Responsibilities for Regional Roads

Today, there can be conflicts between local road functions, such as on-street parking and a road's role in moving transit and other traffic. It is necessary to

[3] *The Millennium line is not a planned line per se; it was never identified as a needed facility in its own right. It is one part of the Central Broadway to Lougheed Mall line and one part of the New Westminster to Coquitlam City Centre line.*

review how regionally funded roads are regulated and how these sometimes competing local and regional priorities may be reconciled.

Transit Priority

The GVTA has identified the need for more bus priority measures, including bus lanes, to improve transit service speed, reliability and cost-effectiveness. A truly effective transit system is only possible with significant priority being given to buses on the crowded roads in the region to allow them to bypass traffic congestion, speed the service and make it more reliable, efficient and attractive.

Among the greatest requirements are additional bus lanes, particularly in the central part of the region. With the high volumes of transit use and mounting congestion, combined with the significant investment in new trolley buses, perhaps the greatest need is within the City of Vancouver.

Goods Movement

There is an increasing requirement to develop practical policies to protect trucks from the effects of mounting congestion. These can be physical (e.g. special lanes), regulatory (e.g. allowing use of HOV lanes), or financial (e.g. preferential tolls, etc.).

Coordinated Planning

A mechanism must be established so that the GVTA may influence the scope, nature, priority, timing and funding of those projects under provincial jurisdiction (e.g. improvements to provincial highways in the region). This should also extend to policy decisions regarding matters such as HOV lanes, truck routes, etc. Similarly, there is a need for close linkage of regional land use and transportation planning.

Tolling

Tolling is likely to become part of the region's future; however, how it will be applied is a major issue yet to be resolved. Tolls can be used to pay for specific new facilities and, more broadly, to address network needs and promote efficiency. The GVTA and the province must work together to develop a flexible policy that will meet the needs of this urban region.

Parking Plan

Transport 2021 and the GVTA's own *2000 Strategic Transportation Plan* (STP) called for the development of a regional parking strategy – one of the most powerful tools to manage the transportation system. However, coordinating the supply, regulation and pricing of parking in an equitable manner across the region's diverse communities raises many issues.

Town Centres and Employment

Town centres have not been able to attract employment to the levels planned. Rather, much of the employment growth has occurred in suburban office parks that are difficult and expensive to serve by transit. Generally, these office parks offer free[4] parking, thus contributing to the mounting congestion. Such developments do not allow the region to maximize the return on investment in the development of high capacity transit linking town centres. While in recent years there has been strong demand for this type of development, for car dependence to be reduced, it is necessary to reverse or moderate these trends.

Coping with Growth

Population Growth and Land Use

The current (2003) population of Greater Vancouver is 2.2 million, with regional employment of over 1.1 million. It is apparent that Greater Vancouver will continue to grow rapidly. By 2031, the population is projected to increase to around three million, with employment reaching approximately 1.5 million. The projected growth will place tremendous pressure on

The region has been one of the fastest growing metropolitan areas in North America, adding 400,000 people and 295,000 jobs over the past decade.

[4] *As noted later in the Finance section, it is proposed to take action to increase taxes on parking. One of the long-term effects of this action is expected to encourage some of these developments to locate areas such as regional town centres, where less parking is needed.*

the existing transportation system and infrastructure. Under the GVRD's *Livable Region Strategic Plan* (LRSP), 68% of the region's population is to be accommodated within an area known as the Growth Concentration Area (GCA). The GCA consists of the City of Vancouver, UBC, Burnaby and New Westminster, Coquitlam, Port Coquitlam, Port Moody, Anmore and North Surrey/North Delta. As of the 2001 Census, 67% of the population resided in the GCA. GVTA policies have supported the GCA through directed transportation investments to assist in achieving these targets.

Another goal of the LRSP was to foster the development of eight regional town centres as the focal point for high density residential, region-serving employment, retail, cultural and community facilities. Although the regional town centres have had some success in attracting high density residential and retail uses, as was noted earlier, they have not been as successful in attracting office development.

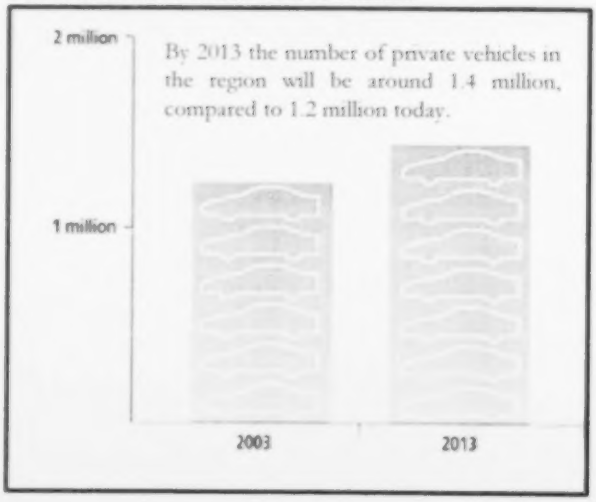
Key Demographic Trends

There are a number of key demographic trends that will influence transportation in the region to 2020:

- The trend towards proportionately more multi-unit dwellings, such as apartments and town houses is expected to continue; this potentially could result in more concentrated, higher density development, than currently exists;
- Car ownership varies across the region, but overall remains high (1.5 vehicles per household), and this trend will likely continue;
- The region's aging population will have implications on both the demand for, and the design of transit services and accessible transit;
- The nature of work is changing, with more people telecommuting, becoming self-employed, and working on a part-time basis;
- The rising costs of post-secondary education have increased the pressure to introduce universal transit pass systems, which can lower costs for students – a key share of the transit market;
- A larger number of small businesses with fewer employees are likely to be more difficult to serve by transit, which can best serve large concentrations.

Growth in Private Vehicles

The number of private vehicles (cars, trucks, SUVs and minivans) in Greater Vancouver has grown by as many as 30,000 vehicles per year in the last decade, with only minimal increases in road space. In part, this growth may have been driven by the inadequacy of existing transit services in some areas within the region – something that the initiatives discussed later in this document would start to address.


2 million
1 million
By 2013 the number of private vehicles in the region will be around 1.4 million, compared to 1.2 million today.
2003
2013

Importance of Goods Movement

Goods movement is a key component to the success of this region's economy. Vancouver, as Canada's largest port, its strategic location on the Highway 99/I-5 trade corridor, and the growing use of the Vancouver International Airport highlight the region's value as a freight transportation hub and trans-shipment point. A recent study by the Greater Vancouver Gateway Council noted that over 360 million tonnes of cargo are moved to, from or within BC annually and is predicted to grow. Projections to 2021 estimate a 50% growth in cargo shipments made mainly by rail. However, it is important to note that both marine and rail shipments include truck movements at both the origin and destination points. Therefore, it is anticipated that cargo shipped by truck will grow by over 50%, by 2021.

The Vancouver International Airport is another major economic engine for both the region and province. As the second busiest airport in the country for passenger and goods movement, it is expected that passenger volumes will grow by 40%, between 2002 and 2010, and that cargo traffic will increase at a rate of 7.5% a year.

In addition to growth in the gateway functions, there are other trends influencing the demand for road-based goods movement. One of these is the development of technology, particularly the advent of the Internet, which has facilitated the demand for just-in-time delivery of goods. As a result warehouse inventories have decreased, thereby encouraging a significant boost in truck movements, as trucks effecuvely become warehouses on wheels.

Overall, truck movements are expected to increase from around 16,000 movements in the peak hour today, to over 21,000 by 2013 – an increase of around 31%. The projected growth, along with other factors, make it necessary to address road congestion while also trying to protect goods vehicles from the effects of overall congestion, by providing priority road access for goods movements.

Travel Beyond Greater Vancouver

Travel between Greater Vancouver and adjacent communities for work, business, school and leisure is increasing and this trend is expected to continue into the future. Today, the GVTA operates its West Coast Express (WCE) commuter train to Mission, which is outside of the GVTA service area. Mission contributes a portion of the costs of this service.

Key adjacent communities include the cities of Abbotsford and Mission, in the Fraser Valley Regional District, and Squamish in the Squamish-Lillooet Regional District. Increased inter-regional travel raises the policy issue of whether further expansion of GVTA services, or jointly provided services, into these jurisdictions – especially transit – should take place and, if so, under what governance and funding arrangements.

Pressure on the Environment

As noted previously, the number of personal vehicles in Greater Vancouver has been growing faster than the population. At the same time, vehicles driven for personal use are becoming larger and burn more fuel. Carbon dioxide is the major greenhouse gas (GHG) produced by vehicles, a direct consequence of burning petroleum-based fuels.

The growth of both population and personal vehicle usage illustrates the greater challenge that this region faces – compared to other Canadian urban regions – to meet the Kyoto target of a 6% reduction over 1990 levels than other Canadian urban regions. Work undertaken for the federal government suggests that to meet the Kyoto targets in Greater Vancouver, GHG emissions for the transport sector would need to be 35% lower than current trends by 2010. While the GVRD's most recent emissions inventory and forecast indicate that emissions of some "smog forming" contaminants are expected to decrease in the next few years, this is not the case for fine particulate matter ($PM_{2.5}$). Since fine particulate matter – especially diesel particulate matter - is one of the region's major air-quality related health concerns, it is important to ensure that emissions of this contaminant are minimized.

Forecasting the future of emissions is not only influenced by the growing numbers of vehicles and their increased use, but the impact of new emission control regulations, which will require cleaner diesel vehicles from 2007 on. It is also expected that hybrid vehicles will become more widely available. Although air quality in the region has been improving, there remains an increasing concern in the public mind over the impact of vehicle emissions on human health and reduced visibility, especially on warm summer days.

Summary

It is evident there are many pressures dictating the requirement to address our transportation deficit for the economic, environmental and social well being of the region. The coming decade offers the opportunity to shape the transportation system in the region and influence how the public chooses to travel. The 2010 Olympics also provides a unique opportunity to offer commuters a range of travel choices for the duration of the games that they might not ordinarily choose. If these choices are well planned and attractive, the Olympics may offer an opportunity to establish new travel patterns for decades to come.

3. THE TRANSPORTATION SYSTEM TODAY

Greater Vancouver has a diverse and complex transportation system that serves its residents' desire for personal travel by automobile, transit, foot and bicycle, while also providing access to the region's ports and other gateway facilities.

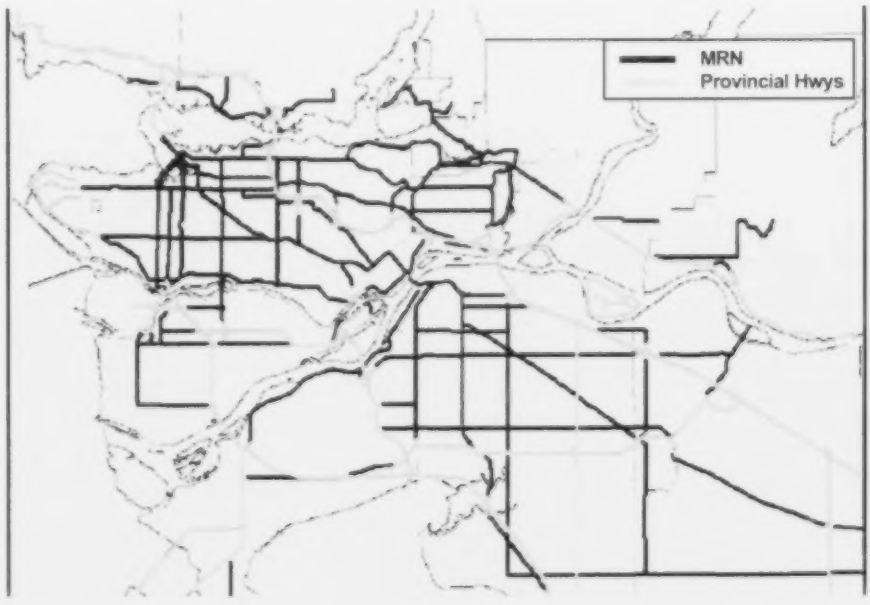
Approximately 1.2 million private vehicles and more than 20,000 trucks use the region's roads daily. This number is forecast to grow to around 1.4 million by 2013.

The Vancouver region has an extensive automobile network, with more automobiles and arterial/expressway lane-kilometres per resident and more off-street parking spaces per employee, in comparison to other major Canadian cities, such as Montreal and Toronto. By contrast, the Vancouver region has a lower per capita transit ridership, compared to these cities. These factors, combined with the many water crossings, contribute to automobile dependence and growing traffic congestion. This congestion further impacts transit costs and reliability, and contributes to higher costs for the movement of goods, with lost productivity due to congestion estimated to be in the range of $750 million to $1 billion per year.

The Transit System

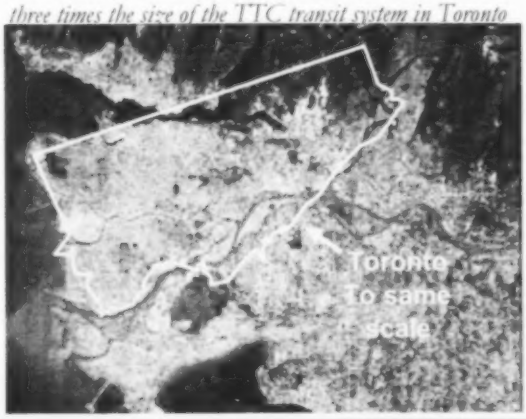
Greater Vancouver has a highly developed and sophisticated transit system that offers a seamless and integrated network of services – Coast Mountain Bus Company and West Vancouver Buses, SeaBus, SkyTrain, West Coast Express train and TrainBus services, Community Shuttles and HandyDART services.

The Major Road Network (MRN) consists of 2,200+ lane-kms of regional roads funded by the GVTA and municipalities and owned by municipalities. Examples include Granville St., Canada Way, and the Lougheed, King George and Fraser Highways. GVTA owns the Pattullo, Knight Street and Westham Island Bridges.



This system is widely regarded as one of the best examples of a successfully integrated transit system in North America and, while lower than many urban regions in Canada, has per capita ridership levels that are the envy of many U.S. cities.

The transit system in Greater Vancouver serves an area three times the size of the TTC transit system in Toronto



Greater Vancouver's transit system has the largest urban service area in Canada, stretching from Lions Bay to White Rock, and from Aldergrove to UBC. It has the third largest ridership in Canada with 141 million passengers projected for 2003. Nevertheless, it is not without its challenges – the fleet size is constrained, rapid transit development is behind schedule and, on a per capita basis, the provision of transit capacity lags behind other major Canadian metropolitan areas.

The Road System

The road system consists of the regionally-funded Major Road Network (MRN), provincial highways and local roads. The regional roads in the MRN are owned and operated by the municipalities, and both the capital and maintenance costs of the roads are financially supported by the GVTA. The regional road network comprises almost 2,200 lane-kilometres of regional roads that serve goods movement and most of the intermunicipal traffic.

The province operates approximately 1,500 lane-kilometres of highways in the GVRD. Together, these two systems accommodate the most important road functions in the region. The Albion Ferry, which operates two vessels between Fort Langley and Maple Ridge, is considered an extension of the road system.

The Transit System Today

- 141 million riders projected for 2003
- over 1,100 Coast Mountain Bus Company buses on 175 routes
- 37 West Vancouver buses
- 44 Community Shuttle buses
- SkyTrain rapid transit (210 cars and 49 kilometres of double track)
- 2 SeaBuses (400 passengers each)
- West Coast Express commuter rail (5 trains and 65 kilometres of shared track)
- 254 HandyDART minibuses for residents with disabilities
- 91 vanpools operated by the Jack Bell Foundation
- 20 park and ride lots, with close to 7,500 spaces
- 111 kilometres of bus and HOV lanes

Bicycling and Walking

The region's residents own more than 1.4 million bicycles, and bicycle use is facilitated through a developing network of bicycle paths and lanes. In addition, most of the transit system is bicycle accessible through the bus bike rack and bicycle locker programs. In addition, there are programs to accommodate bicycles on SkyTrain and West Coast Express. Approximately 2% of residents cycle to work daily, with bicycle use as high as 10% in the westside of Vancouver.

In the more developed parts of the region, such as downtown Vancouver and certain regional town centres, some residents prefer to walk to work and school. Pedestrian facilities in many parts of the region need upgrading to encourage more people to walk.

How We Get Around

In Greater Vancouver, close to 3.5 million trips are made each day. The majority of these trips are made by the approximately 1.2 million automobiles in the region.

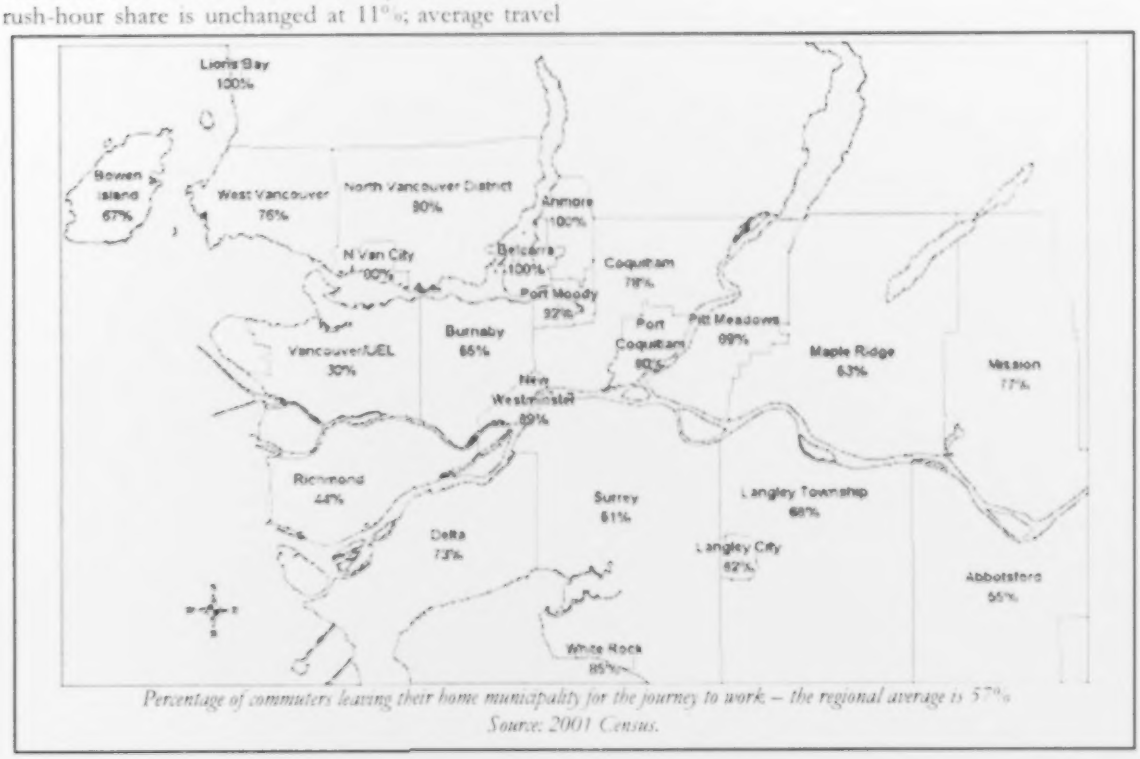
On a typical weekday, the mode share of travel is as follows:

- 74% by private automobile
- 13% by walking
- 11% by transit
- 2% by bicycle

Within these averages there are many variations. Transit travel, like general traffic, varies considerably by time of day. More significantly, it varies considerably by market and destination. For commuter trips into downtown, Vancouver transit's share of travel comprises around 50% of all motorized trips and has around a estimated 40% market share to UBC, since the U-Pass was introduced in September 2003. Other destinations with considerable transit mode shares include SFU, Central Broadway and several of the regional town centres, such as Metrotown. Travel in some of the more remote areas of the region are made predominantly by private vehicles. In part, this is due to the nature of development and the lack of attractive alternatives to the automobile.

Over the past decade, the overall travel patterns of commuters have remained relatively static: transit's rush-hour share is unchanged at 11%; average travel distances to commute to work by car have remained unchanged at 14 kilometres. However, it is significant to note that average travel times have increased substantially, to 26.5 minutes, from 19.5 minutes.

The region is also highly integrated – the 2001 census shows that almost 57% of rush hour commuters travel from their home municipality to another municipality to work. This demonstrates the need for an integrated regional approach to manage the growing demands, and substantiates that improvements to one municipality can benefit residents and businesses in another.



Percentage of commuters leaving their home municipality for the journey to work – the regional average is 57%
Source: 2001 Census.

4. GREATER VANCOUVER BY 2013

This section presents and discusses the proposed actions for plans, projects and programs to be taken in the period 2005 to 2007, within the context of an overall vision for the development of the regional transportation system to 2013. The financial plan is presented later in Section 6.

The vision has many elements, including the substantial initiatives that are presently underway to improve the system, including the planned Richmond-Airport-Vancouver (RAV) and Northeast Sector (NES) rapid transit lines, bus expansion, and road improvements, such as the new Fraser River Crossing. In addition, it articulates a number of other initiatives to increase the use of transit, better manage the transportation system and make further investments in services and facilities.

The section also reviews the initiatives to be implemented in the period from 2005 to 2007, as part of the overall new three-year plan from 2005 to 2007. A listing of the specific actions to be taken by the GVTA over the three-year period is presented in Appendix A.

Making Transit a More Viable Choice

Increasing Transit Ridership

The 10-year transit service strategy focuses on developing more frequent, attractive, clean and reliable services that are competitive with the automobile. This can be achieved not only in the traditional central part of the region, but also in many suburban areas, which have become more dense and conducive to transit use. Recent trends towards higher density development in some regional town centres and the emerging suburban pockets offer potential to improve ridership.

The transit strategy offers more frequent and a greater variety of services to those markets in communities that are not well served today. It will result in providing a minimum of 10-minute peak period service to at least 50% of residents in all sub-regions of Greater Vancouver. At this level of service, transit becomes a desirable alternative to the automobile. Balancing this is the need to provide an appropriate level of service for the large core, transit dependent market, delivered in a cost-effective way.

Recent initiatives by the GVTA have focused on offering a broader range of bus services for different market segments. Bus services are now provided under four brand names, including Bus, B-Line, Express Coach and Community Shuttle. In addition, HandyDART provides door-to-door transportation for people who are unable to use conventional services. There are a number of actions that can be taken to increase transit ridership. Some of these relate to the services that are provided, including completing the rapid transit network, and expanding bus services and the Community Shuttle system.

Before describing the service strategy elements in more detail, it is important to focus on other initiatives that complement system expansion, make the system more attractive and build a market for transit.

Expansion of U-Pass – As of September 2003, the U-Pass Program has been in effect at both UBC and SFU. By 2007, the GVTA intends to expand this program to many other public post-secondary educational institutions in the region that are currently included in the FastTrax program. This will increase the student population with an annual transit pass from around 60,000 today to approximately 85,000+.

Increased Employer Passes – Like the U-Pass Program, increasing the number of passes available to employees of large organizations or clusters of employers offers the potential to significantly increase ridership. Efforts will focus on achieving this by 2007.

Specialized 'TravelSmart' Marketing – The GVTA will employ a TravelSmart marketing program to encourage residents in specific neighbourhoods to change their travel behaviour. The pilot program is part of the GVTA's application to Transport Canada's Transportation Showcase Program and will be targeted initially to the inner, middle and outer rings of the metropolitan region – Vancouver-Kitsilano; Burnaby-Sperling; Richmond-Centre; South Surrey/White Rock, and Coquitlam-Centre. This program is based upon successful strategies implemented in Germany and Australia, which have been able to achieve significant 10% to 20% mode shifts from automobile to transit, walking and cycling.

Improved Customer Information – The GVTA will further enhance its Internet and voice based services, by providing timely and valuable real time information. This will make it easier for passengers to plan seamless and convenient trips to meet their specific needs.

Expanding the Transit Network to 2013

Completing the Rapid Transit Network

Developing a network of rapid transit lines to link downtown Vancouver and the major regional centres has been at the core of the region's growth management strategy for decades. Rapid transit offers an attractive alternative to the automobile by encouraging greater use of public transit, as well as providing the catalyst for higher density development around stations. Encouraging the use of the existing system, as well as completing the rapid transit network, is a high priority over the next 10 years.

SkyTrain will need more cars due to ridership growth, and the aging Expo line fleet.

SkyTrain When SkyTrain was introduced in 1986, it radically transformed the structure of public transportation in the region. Today, the 49-kilometre system carries over 200,000 people per day and is widely recognized for its frequent service, on-time reliability and its level of integration with other transit services.

SkyTrain needs additional capacity. Approximately 34 new SkyTrain cars, at a cost of $181 million, will be required to accommodate the forecasted demand of 280,000 people per day in 2013, as a result of growth in the Burrard Peninsula and Surrey. Additional investment will be necessary to keep the existing system in a state of good repair. These include station upgrades, improvements to the automated train control and safety initiatives. The original fleet of 114 Mark I cars have been in operation since 1986. A replacement fleet of Mark II cars will need to be delivered before these vehicles reach the end of their useful lives. Due to the extensive manufacturing and testing processes required, the procurement process may need to be initiated closer to 2013.

Richmond-Airport-Vancouver (RAV) Rapid Transit: The next component in the rapid transit network will be a line connecting Vancouver with Richmond and the Airport, a corridor that accommodates over 30% of the region's jobs. The 19.5-kilometre line is being developed in partnership with the Vancouver Airport Authority, the province, the federal government and private sector. The line is projected to carry 90,000 to 100,000 people per day shortly after opening in 2009. Contract award is anticipated in 2004.

Northeast Sector (NES) Rapid Transit: The extension of the rapid transit network from the existing Millennium Line to Coquitlam City Centre is a high regional priority. The line, which would considerably shape urban development in the Northeast Sector, is critical to the region achieving its growth management objectives. The GVTA and GVRD Boards have approved borrowing of up to $400 million toward the project. Senior government funding will be required to help to finance the project, which is targeted for completion no later than 2013. The GVTA will be working with municipalities until early 2004 to determine the optimum route and technology, with the intention of proceeding with the design and implementation of the project starting later in 2004.

Western Extension from Commercial Drive: The potential final link of the rapid transit network on the Burrard Peninsula is a western extension, connecting the existing system with the Central Broadway Business District and potentially to UBC[5]. Studies to review alignments and technologies, community integration, cost, financing and phasing will be completed within the next five years; although it is unlikely that construction could begin until after 2013. The priority and requirement for a link as far as UBC

[5] *Extension to UBC is not included in the GVRD's Livable Regional Strategic Plan (LRSP).*

should be addressed in the forthcoming longer-term growth management and long-range transportation plan processes.

King George Busway: Bus rapid transit extensions south and east of the existing SkyTrain terminus at Surrey City Centre are proposed to be operational by 2013, in order to increase transportation capacity in the rapidly growing City of Surrey. The projected capital cost is in the order of $120 million, which the GVTA would cost share with senior levels of government.

West Coast Express (WCE)

The introduction of commuter rail service in the Northeast corridor which links key regional and municipal town centres has resulted in a significant mode shift to transit since its introduction in 1995, with over 50% of users being former single occupant vehicle users.

The WCE is the most popular service that the GVTA operates and has the highest on-time performance of any commuter rail system in North America. WCE offers a highly competitive alternative to the automobile and captures 35% of the transit share from the Northeast Sector in the morning peak period. Recent reductions in track usage fees have resulted in significant savings to the GVTA and opened the door to expanded service in the future.

New train stations in the Albion area and North Burnaby, with frequent transit connections, improved park-ride facilities at some existing stations, and expanded TrainBus services could be introduced to potentially increase WCE ridership even further, while making better use of the existing assets. However the effects of the planned NES rapid transit line will need to be considered before any decision to expand service beyond five trains in each rush-hour. The completion of the Fraser River Crossing between Maple Ridge and Langley in 2007, with frequent transit connections being provided to WCE stations, will further expand the market for commuter rail service to the Langley area.

Making Use of Waterways

The numerous waterways in the region are often considered as barriers to transportation. Many cities in the world, however, have successfully integrated extensive water based transportation systems to move people more efficiently while developing exciting new urban communities at the waters' edge. Over the next decade, the GVTA proposes to expand the use of clean water transportation in three ways.

The GVTA can open its Waterfront Station to private carriers serving communities such as Nanaimo, Sunshine Coast and Howe Sound. Attractive passenger-only ferries will reduce traffic through Horseshoe Bay and West Vancouver, while encouraging greater use of GVTA services at the Waterfront hub.

Up to seven additional passenger-only ferry routes connecting Vancouver with communities such as Bowen Island, Ambleside and Deep Cove, offer the potential to reduce commuter traffic on the bridges, while enhancing existing urban communities.

The SeaBus, linking Waterfront Station with the Lonsdale Quay, has operated successfully for the past 26 years. With projected growth in development in Lower Lonsdale, an additional vessel at an approximate cost of $10 million is proposed by 2009. The third vessel will also help relieve the existing two vessels, providing better service reliability. Replacement and refurbishment/refitting of the original vessels will be determined after the results of a vessel condition assessment study are known.

Expanding Bus Service

The bus network plays an essential role in Greater Vancouver's public transportation system by providing access to employment, education, shopping, medical and recreational facilities. Buses also serve town centres and provide connecting service to and from SkyTrain, SeaBus and West Coast Express. Every weekday, the bus network carries 525,000 passenger boardings, representing over 70% of the total transit trips in the region.

The network is extensive, with 175 routes, 8,000 bus stops and 111 lane-kilometres of dedicated bus or HOV facilities. Over 85% of the region's population is within a 10-minute walk of a bus stop. Approximately 47% of bus riders do not own or have access to a vehicle, and bus use is highest among women, the elderly and adolescents. Bus ridership is highest in Vancouver and Burnaby, where the combination of lower car ownership and higher densities make bus service more viable. Usage tends to be lower in the fast growing eastern and southern

suburbs, except for commuter trips to downtown Vancouver.

Bus Service Strategy: The GVTA is committed to making bus transit a more attractive option for travel in Greater Vancouver. Bus service expansion will be targeted at the following markets:

- **The metropolitan core:** This market is attractive because of the density of its growing residential and employment populations, low car ownership and relatively high parking costs.
- **Post-secondary and high schools:** This market is highly mobile, yet has a relatively small percentage of cars and lower income levels. It includes age groups where life-long travel habits and preferences are formed.
- **Core bus riders:** Approximately half of bus riders do not have access to an automobile and use transit, as their primary form of travel. Serving many of these riders is a matter of social and economic equity.
- **Suburb-to-suburb:** The fastest growing travel market has low levels of bus ridership today, but increasing pockets of higher density urban development in town centres and along major arterial roadways, linking town centres to new market opportunities.

To meet growth, the bus fleet will need to expand to approximately 1,550 vehicles by 2009 from 1,200 today, and to 1,600 buses by 2013, an increase of 400. It previously took the transit system 25 years to increase from 800 to 1,200 vehicles. Most of this expansion will occur between 2005 and 2009, as the introduction of the RAV and the NES rapid transit lines, combined with buses freed up by the introduction of this rapid transit service, will accommodate the anticipated growth in transit ridership expected between 2009-2013. In addition, due to vehicles reaching the end of their useful life, over 1,300 vehicles will need replacing during the 10-year period, to ensure a reliable, attractive and accessible fleet.

Newer vehicles introduced into the fleet will also improve emissions performance. By choosing to replace the existing trolley buses with new trolley buses, the GVTA has committed to ensure that zero-emission vehicles serve its most heavily used bus routes. At present, over half the transit trips in the region are made on zero emission trolley buses or SkyTrain. However, lower density parts of the region are served by diesel buses, and, in consultation with the GVRD and other stakeholders, the GVTA is examining a range of options to reduce heavy-duty diesel emissions.

Three-Year Transit Expansion Strategy

The 2005-2007 period would experience an expansion of Bus, Community Shuttle and HandyDART services across the region, improvements to West Coast Express, the introduction of new accessible trolley buses, and continued work towards rapid transit expansion and expanded marine ferry services.

In early 2004, the GVTA will place orders for new buses for expansion of service in 2006 and 2007, as it takes up to two years to obtain new buses. As well, the GVTA will re-introduce the existing 50 Compressed Natural Gas Buses back into service in 2005, to enable additional improvements to be made to bus service in 2005, prior to the new buses arriving.

Leverage Rapid Transit and Commuter Rail

SkyTrain: A major expansion of the system was completed in 2002, with the opening of the Millennium Line and the introduction of 60 new Mark II cars. Over the next three years, there will be modest improvements to the system. These include:

- Completion of the new Vancouver Community College (VCC) station in 2005 and extending the Millennium line to serve this station;
- Completion of the new entrance to the Granville Station in 2005;
- Upgraded lighting and other proposed station improvements between 2005 and 2007;
- A 5% increase in the peak-period capacity of SkyTrain, through the full deployment of the new Mark II vehicles, including the use of some four-car trains.

Richmond-Airport-Vancouver (RAV) Line: The development of the Richmond-Airport-Vancouver rapid transit line will have a significant impact on ridership in the region, with transit ridership increasing from 40,000 to 90,000 per day. People traveling in this corridor by car or rapid transit will see substantial benefits. Assuming funding is secured and a successful RFP process is completed, construction could begin in 2005, with completion by 2009. The GVTA's share of the capital cost will be $370 million (2003 dollars – includes interest during construction

and inflation). RAVCO, a GVTA subsidiary, will enter into agreement with the successful proponent to develop, operate and maintain the line for 30 years.

Northeast Sector: The development of a Northeast Sector (NES) rapid transit line will proceed to more detailed alignment and engineering studies, following the selection of a preferred corridor and technology in 2004. The alignment and engineering studies will better define the cost, ridership and revenues for the new line. The GVTA has committed $400 million to the project, although additional funding may be required from the provincial and federal governments, depending on the final project scope. In the 2004-2007 period, a project office will be established, the delivery model will be determined and detailed implementation activities will commence.

West Coast Express (WCE): West Coast Express will expand its train and TrainBus services between 2005-2007, to capture a greater share of the longer distance travel market.

Key initiatives include the following:

- Proposed spare locomotive to ensure reliable train operation in 2006 and return spare locomotive on loan;
- Expanded park and ride at the Maple Meadows Station, concurrent with the opening of the new Fraser River Crossing in 2007;
- Expanded park and ride facilities at Port Coquitlam Station;
- Completion of a new station in the Albion area of Maple Ridge in 2007, with park and ride facilities;
- Completion of a new station in North Burnaby in 2007;
- Examination of feasibility of a possible 6th WCE train, within the context of the results of the NES rapid transit studies;
- Expanded TrainBus service in the Northeast Corridor in 2004-2007, in the mid-day and weekend periods, and potentially, the introduction of other premium fare long-distance bus services.

Marine and SeaBus

Work will be ongoing to launch up to two potential new Burrard Inlet ferry services between 2005-2007, which may be undertaken through a public-private partnership. The GVTA will also facilitate the introduction of new coastal marine services from the Sunshine Coast and Nanaimo. In addition, a commitment to purchase a third SeaBus will be finalized, with delivery scheduled in 2009, in time for the Winter Olympics. The future of the Albion Ferry service will be decided as part of the Fraser River Crossing Project.

Bus and Community Shuttles

During the period 2005 to 2007, bus and Community Shuttle services will be expanded to respond to growing demand, and over 135 aging diesel buses and Community Shuttle vehicles will be replaced. At the same time, a new low-floor accessible trolley fleet will be introduced, rendering the system 100% wheelchair-accessible.

Key bus initiatives include the following:

Service Improvements

- Increased frequency on existing high demand services in the metropolitan core municipalities of Vancouver, Burnaby and New Westminster, where there is latent demand. This will occur in conjunction with the introduction of transit priority measures to improve the speed and reliability of service and improve the efficiency of the increased capacity on these routes;
- Introduce new routes to serve new developments in the core;
- Improved 10 minute peak period service in higher demand suburban municipal and regional town centres and in key higher density corridors linking these centres;
- New suburb-to-suburb links connecting Burnaby and North Vancouver, Maple Ridge and Langley, via the new Fraser River Crossing, and Coquitlam and Surrey;
- An additional B-Line service will be introduced in a high density urban corridor;
- New Community Shuttle services across the region to enhance service frequency and area coverage, and to continue to improve the cost efficiency of services. All areas of the region will have Community Shuttles;
- Additional improvements to the frequency and coverage, by existing Community Shuttle services;
- Introduction of new bus services and improvements to existing services to coincide with major roadway infrastructure improvements, such as introduction of the new Fraser River Crossing and widening of the Fraser Highway in Surrey;

- Continued bus service improvements for existing SFU and UBC U-Pass Programs, and introduction of new services for an expansion of the U-Pass program to other public post-secondary schools using the FastTrax program;
- Added service to respond to the new Transit Service Design Guidelines, which will be implemented in 2004 and will make service simpler, more frequent, reliable, convenient, comfortable and efficient;
- Expand NightBus service in high demand corridors, subject to successful evaluation of the current pilot project;
- Facilitation of inter-regional transit service improvements, subject to appropriate funding agreements.

Fleet Expansion:

- Expand the fleet to approximately 1,400 buses by 2007;
- Acquire 130 new articulated and conventional buses and Community Shuttle vehicles (includes spares), and up to 360,000 annual service hours for expanded service across the region;
- New electric trolley fleet;
- Replacement of approximately 380 buses, including new trolleys.

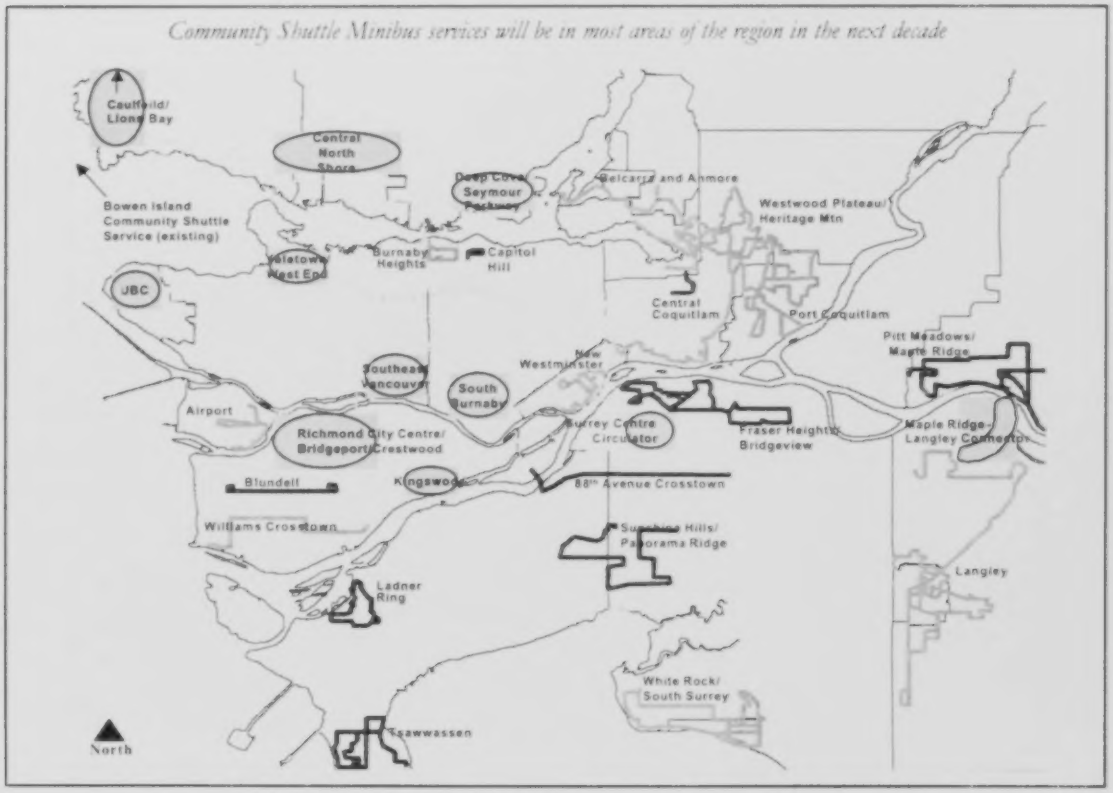
Transit Facilities:

- New Vancouver Transit Centre to replace Oakridge facility in 2005;
- New North Shore Transit Centre to replace North Vancouver facility by 2007;
- New heavy maintenance facility by 2007;
- Transit signal priority measures to upgrade the #97 and #99 B-Line routes;
- Completion of queue jumper lanes at Port Mann Bridge, Second Narrows Bridge (south end);
- Start on new bus priority lane northbound on Highway #99.

Marketing Programs

- The U-Pass Program will be offered to publicly funded post-secondary schools close to public transit, to improve the accessibility and affordability of the transit system for this large customer group;
- The GVTA will introduce a pilot Community Pass program patterned after the U-Pass Program, and some variations of the Employer Pass Program, to increase its participation.

Community Shuttle Minibus services will be in most areas of the region in the next decade



HandyDART

It is proposed to expand HandyDART by 3% per annum, with the addition of 24 vehicles over the three-year period, and the introduction of improved scheduling efficiencies to improve the response to growing demands on this service. In addition, approximately 110 aging vehicles will need replacing. As well, a strategic plan for accessible transit will be completed by 2006.

Transit Benefits

Ridership is projected to increase from a projected 141 million in 2003 to around 185-186 million in 2007 and will continue to climb between 2008 and 2013, as continued expansion occurs in the bus system and the RAV and NES rapid transit lines begin service. The phased development of the system will advance services to a new level and lay the foundation for sustained improvement in both local and regional services over the next decade.

Increased use of the transit system will have environmental benefits by replacing trips that otherwise would have been made by single occupant vehicles. Transit is a much more efficient way to move people, and will reduce consumption of fossil fuels, emissions of local air pollutants and greenhouse gases.

Transit can also showcase new technologies, which are pointing the way to lower vehicle emissions. Half of the transit trips in this region already take place in zero emission vehicles – SkyTrain and electric trolley buses. Both of these systems capture energy from braking for re-use in the system, as well as using electricity from existing hydro sources.

As part of the program of funding support from the Federation of Canadian Municipalities Green Municipal Investment Fund, the GVTA will reinvest the savings in financing the cost for buying new trolley buses in buying green power certificates and pursuing innovative ways to promote alternative transportation.

Over the next 10 years, the GVTA will purchase 1,300 replacement buses (including HandyDART vans and community shuttles) and is already in the process of examining how these vehicles will be powered. In conjunction with the GVRD, a study is underway comparing the emissions performance of various alternative fuels and other power systems. At the same time, federal regulations governing diesel fuel and engine emissions will be much stricter in 2007. The study is examining how new technologies and alternative fuels can reduce both local emissions of particulates (a major health concern for areas around heavy traffic corridors) and greenhouse gases.

One particularly important area yet to be determined is how cost effective the various approaches will be. New technologies, such as fuel cells, or the use of hydrogen in combustion engines are very expensive and a trade off has to be made between increasing the size of the bus fleet, and thus providing more service, or buying fewer, more expensive, but significantly cleaner vehicles.

There are also some emerging solutions that are easier to implement, such as substituting biodiesel or other renewable fuels for some of the diesel. A number of trials of such fuels have been conducted in other cities, which show that they are technically possible. While these fuels are not yet commercially available in this region, that is expected to change during the 10-year period of this Outlook.

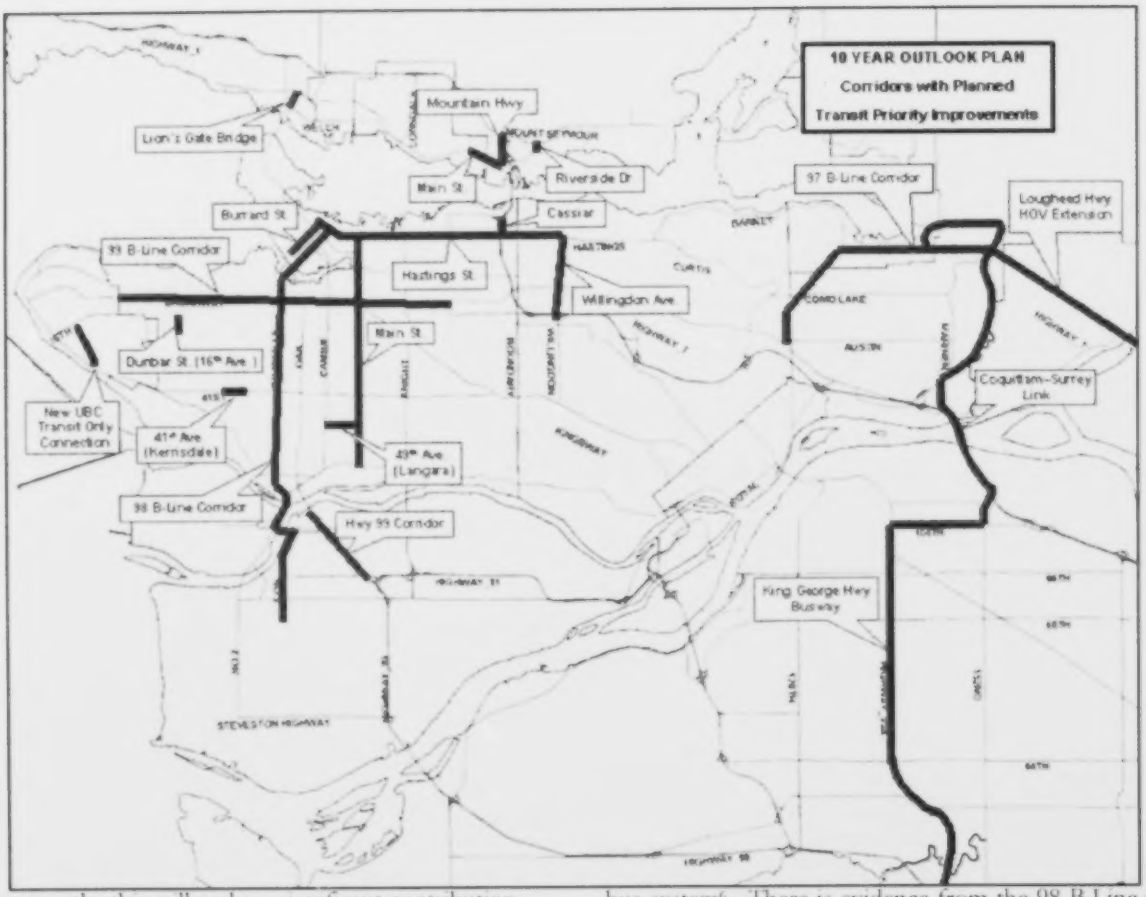
Next steps:

- The GVTA and the GVRD will review the results of the diesel emission reductions study and determine the most cost effective way to proceed for both procurement of new vehicles and upgrade or retrofitting of the existing diesel bus fleet.
- A small number of trial vehicles will be acquired, including hybrid buses, to collect in service data on costs and performance. Funding has been secured as part of the Urban Transportation Showcase Program from Transport Canada ($8.8 million).

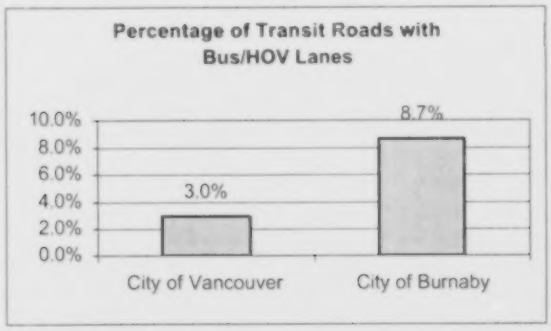
The re-introduction of natural gas buses currently in storage will be examined in 2004.

Transit Priority Measures

The GVTA has identified a requirement for additional bus priority measures, including signal priority and bus lanes, to allow the buses to bypass traffic congestion, thus speeding up transit service and making it more reliable and cost-effective. The need for more bus lanes, among others, also came up in the consultation process. The goal is to make transit more competitive and a true alternative mode of travel to automobiles.



Consequently, this will make a significant contribution to reduce road congestion and protect the environment.



Between 1991 and 2001, it was estimated that growing traffic congestion in the Vancouver region had increased transit-operating costs by $15 million, reducing the attractiveness and the productivity of the bus system[6]. There is evidence from the 98 B-Line of how signal priority designed to keep buses on schedule, resulted in travel time savings of four minutes round trip. This reduction in travel time resulted in a saving of one vehicle in the fleet of twenty-four – equivalent to a 4% increase in productivity.

Today in the most congested core communities there are 24 kilometres of bus/HOV lanes travelled by buses in Burnaby, compared to some 13 kilometres in Vancouver.

Looking ahead in the next 10 years, the GVTA proposes significant improvements in transit service.

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[6] *To illustrate this, in April 2003, Coast Mountain Bus Company added 40 min. of running time to four routes at various times of the week to deal with delays, due to traffic congestion, they encounter en-route. These added running times imply the slowing down of service for these routes and may require the deployment of additional resources just to maintain the current frequency without adding additional service.*

It has committed to spend $273 million to replace and upgrade the entire trolley fleet for the cities of Vancouver and Burnaby in the next few years. To maximize their use and to realize their zero emission benefits, they must not be allowed to be slowed down by traffic congestion.

As well, travel time and schedule reliability of all B-Line services (#'s 97, 98, and 99) will be enhanced and protected. The potential for improvement is considerable. For example, bus service on Broadway, including the Rapid Bus #99 B-Line in Vancouver, now carries a similar number of riders to the light rapid transit system in Portland, Oregon, without any transit priority measures, such as signal pre-emption and bus lanes in the Broadway corridor. Additionally, the GVTA will develop strategies and policies for the implementation of transit priority measures that reflect the amount of passengers transit carries relative to the autos, in concert with the regional transportation plan.

Bicycling and Walking

The region's residents own more than 1.4 million bicycles, and bicycle use is facilitated through a developing network of bicycle paths and lanes. In addition, most of the transit system is bicycle accessible through the bus bike rack and bicycle locker programs. Approximately 2% of residents cycle to work daily, with bicycle use as high as 10% in the westside of Vancouver. In the more developed parts of the region, such as Downtown Vancouver and certain regional town centres, some residents prefer to walk to work and school. Pedestrian facilities in many parts of the region need upgrading to encourage more people to walk.

Cycling

The goal for cycling is to encourage increased use of bicycles as a transportation mode. The foundation of the GVTA's current $3 million annual Bicycle Program is based on facilitating partnerships with municipalities to fund and build new cycling infrastructure, provide good connectivity with transit, and coordinate regional cycling information and plans. Cycling's share is significant and growing in many parts of the region, and additional investment in safe, accessible facilities will encourage this further.

In three years, the GVTA will invest $15 million in facilities for cycling. The GVTA will increase its annual capital program from its 2004 level of $3 million to $4, $5 and $6 million, in 2005, 2006 and 2007, respectively. Of this, the majority will be cost-shared with municipalities for the development of over 150 kilometres of new cycling facilities in the region. This includes the development of the Central Valley Greenway, through Vancouver, Burnaby and New Westminster, linking to Coquitlam. Some of the funding in the 2005-2007 period will go towards further integration of cycling facilities with transit and contributing to upgrades of the BC Parkway.

In addition to the current the Bike Program capital funding flexibility, the GVTA will work with municipalities to review the funding allocations among the road, bike and TRRIP[7] programs, potentially to allow greater funding of bike and transit priority programs. Funding for cycling improvements on the Pattullo and Knight Street Bridges will be integrated within the GVTA roads and bridges program. The new Fraser River Crossing and RAV project bridge across the Fraser River will include cycling facilities. The arrival of new trolleys will result in the bus fleet being 100% bicycle rack accessible by 2007.

Complementing the GVTA capital investments will be a growing program of information and education to encourage more people to cycle. Up to $400,000 in annual funding will be available for improved maps and trip planning for cyclists, education for new cyclists of all ages, partnerships with the cycling industry to develop better skills, and partnerships with municipalities to develop excellence in road design for cycling.

Addressing Road Congestion

This section of the document presents a 10-Year Outlook for the region's road system and the specific proposals that are recommended for implementation in 2005-2007.

Today, the GVTA is responsible for three bridges[8] and provides a planning, coordinating, and funding role for the Major Road Network (MRN), as part of its responsibility for the regional transportation system. The MRN consists of approximately 2,200 lane-kilometres of regional roads that are owned by and are under the municipalities' direct control, although the GVTA jointly plans and funds these roads with municipalities. Collaboration with the region's

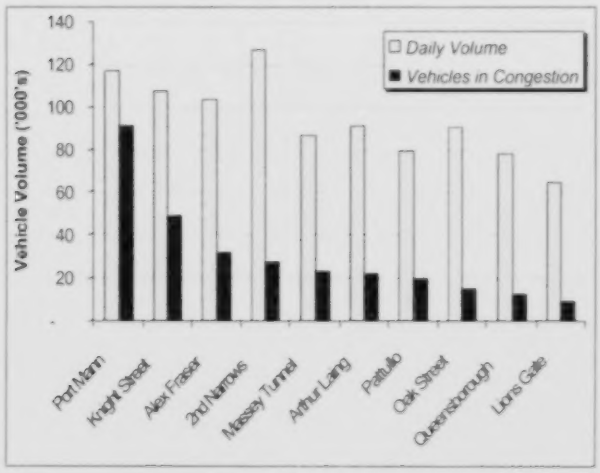
[7] *Transit-related Road Improvement Program*
[8] *Pattullo, Knight and Westham Island Bridges.*

municipalities is part of the process in establishing priorities, and input is also sought from other major stakeholders, such as the Greater Vancouver Gateway Council and the Ministry of Transportation, since the MRN connects with the provincial highway system.
In addition to the funding of roads and bridges, the GVTA also funds the operation of the Albion Ferry, which currently connects the road network across the Fraser River between Maple Ridge and Langley, east of the Port Mann Bridge.

Selective investment in the road system is important, as the growing number of vehicles in the region is creating increased travel times for auto users, bus transit users and trucks, and forecasts indicate that the problem will only escalate. Given the importance of goods movement to the region's economy, road investments should place a high priority on addressing the needs of the trucking industry.

If no transportation improvements were made by 2013, the length of severely congested rush-hour roads in the region is predicted to increase from approximately 360 lane-kilometers today to 570 lane-kilometers in 2013, an increase of almost 60%. Particularly hard-hit will be approaches to bridges and major arterials, with much of the growth in congestion south of the Fraser and east of North Road.

Proposed Road Initiatives



Worst 10 Crossings Based on Congestion

The 10-Year Outlook and Three-Year Plan address the need for:

- Selective expansion of major road facilities, primarily to address goods movement;
- Ongoing localized capital investment to improve operations and efficiency;
- Maintenance and rehabilitation of existing roads.

It should be noted that, in addition to direct road investments, an important aspect of relieving gridlock is by improving public transit. Investments such as the Richmond-Airport-Vancouver (RAV) and Northeast Sector (NES) lines, King George Highway Busway and transit priority lanes not only improve conditions for transit users, but also improve travel times and relieve congestion for motorists and goods shippers.

Regional Roads – GVTA Major Projects

Since 2000, annual funding for the GVTA's Major Capital Road Program has increased from $5 million to $35 million in 2003. The intent of the program was to leverage senior government partnerships and funding for those projects that have significant regional, provincial or national benefit, which the region could not afford to undertake solely. However, senior government partnerships have not yet emerged and with growing pressures to implement these essential improvements, it has become more urgent to draw upon the available funding from this program.

Given the pressure to proceed with investment in the region's road infrastructure and the limited ability for municipalities to cost-share in large projects, this 10-Year Outlook proposes that the GVTA contribute up to 100% of funding for seven projects, within the $230 million envelope that is potentially available over the next three years.

From 2008 to 2013, it is proposed that an additional $210 million be committed to major projects, for a total of $440 million of accumulated GVTA major road capital funding by 2013. As part of the 10-Year Outlook, the GVTA will conduct the necessary technical studies, in partnership with municipalities and other levels of government, to identify and prioritize initiatives for these latter years. It is anticipated that the GVTA's $210 million in capital for later years may be able to leverage over $400 million in additional senior government funding.

While this approach places the majority of the financial burden for these projects on the region until 2007, it allows some of the projects to proceed

immediately in 2004, regardless of senior government funding. However, the GVTA should continue to seek senior government partnerships and leverage funding as opportunities arise.

With the continuation of the $35 million Major Road Capital annual allocation in the 2005-2007 Financial Plan, a total of $230 million in accumulated capital will be available for Major Road investment in the period to 2007. The following table shows the recommended projects:

- The GVTA Board has approved, in-principle, the Fraser River Crossing (FRC) and project development is well underway. The new crossing will be predominately self-financed through tolls and therefore will not require significant additional capital from Major Road Capital funds.
- The Dollarton Bridge twinning, Fraser Highway widening and the North Fraser Perimeter Road are identified in the GVTA's current *Strategic Transportation Plan* that was approved by the GVTA and GVRD Boards in 2000.
- The Murray-Clarke connector is the completion of an unfinished portion of road that was part of the province's Barnet Highway HOV project.
- The Coast Meridian and Overpass project has been identified in the report titled 'North East Communities of Greater Vancouver – Regional Transportation Priorities' that was released in early 2003.
- As a result of the consultation, a separate connecting project identified in that same document, the $15 million David Avenue extension, is also proposed for approval, subject to it being able to be accommodated in the recommended budget envelope. This project includes a bridge over the Coquitlam River, to complete a continuous corridor along David Avenue and Coast Meridian Road. This would also provide some relief to key intersections along Lougheed Highway in this area.
- The 204th Street overpass has been identified as a longstanding requirement of the City of Langley and discussions between GVTA and MoT have identified this as a strong candidate for provincial cost sharing. At the time of preparation of this final report, it appears likely that non-GVTA funding could be in the range of 50 to 75% of the total project cost.
- The widening of Main Street in the District of North Vancouver has been a longstanding requirement identified by the District and is also in the Greater Vancouver Gateway Council's list of major capital projects required to assist goods movement in the region.

Three-Year Road Capital Projects

(i) Fraser River Crossing (tolled)	$600 m
(ii) North Fraser Perimeter Road	$60 m
(iii) Fraser Highway Widening	$45 m
(iv) Dollarton Bridge Twinning	$8 m
(v) Coast Meridian with overpass to Kingsway	$60 m
(vi) 204th Street Overpass	$18 m
(vii) Main Street Widening (North Van)	$5 m
(viii) Murray-Clarke Connector	$25 m
(ix) David Avenue Extension	$15m
Total	**$836 m**

* *Cost sharing will be sought from the province and other levels of government for some of these projects. Projects will not proceed without municipal approvals.*

While some of the projects outlined may be subject to revision, as part of the ongoing municipal dialogue, the investment[9] of the available $230 million in Major Road Capital will allow a number of the region's longstanding road projects to be implemented by 2007.

As a result of feedback from the consultation process, it is recommended that these Major Capital Road projects should be reviewed for their potential to be enhanced, by incorporating demand-side measures, which promotes multi-modal usage. In addition, it is recommended that for any further projects to be included, in the period 2004-2013, GVTA staff and MRTAC (the Major Roads and Transportation Advisory Committee), and other stakeholders, as necessary, should initiate a process to both identify and evaluate any additional Major Capital Road Projects within the region.

[9] *In addition to the above projects, improvements to Knight Street are planned as part of the federal Border Infrastructure Program. If Vancouver approves this, it will leverage GVTA funds along with provincial and federal government contributions.*

To assist in evaluating any potential additional Major Capital Road projects for future consideration, it is proposed that the guidelines used for evaluating these types of projects be updated. The guidelines, referred to as "*TransLink Transportation Evaluation Guidelines*" (October 2000), were used to evaluate Major Capital Road projects recommended in the 2000 *Strategic Transportation Plan*, as well as those included in the 10-Year Outlook, where appropriate. In addition, it is proposed that the updated evaluation guidelines recognize the range and scale of the types of projects involved, and that the Province be requested to participate in this review and update. The overall objective is to develop a standardized evaluation process that can be adopted by all levels of government for assessing significant transportation projects within the GVRD.

Regional Roads – Operations Maintenance and Rehabilitation

Each year, the GVTA will spend an estimated $12,000 per-lane kilometre of road on the over 2,200 lane-kilometres of regional roads that it supports, in partnership with the municipalities in the region.

Typically, this totals about $27 million per year, and pays for the daily wear and tear on roads, street lighting, traffic lights and repaving. Examples of roads covered under this program are Granville Street, Marine Drive, Lougheed Highway, King George Highway and Scott Road. These funds ensure that all roads used for inter-municipal travel are maintained to a consistent standard throughout the region.

The adequacy of the current level of funding will be reviewed once sufficient data has been collected. In the meantime, it is recommended that an annual inflationary[10] increase be applied to the unit rate starting in 2005.

Regional Roads – Minor Capital

In addition to maintenance funding, the GVTA provides a minor capital budget to pay for smaller capital projects, such as intersection improvements, bridge upgrades, road widening and pedestrian facilities.

The annual funding for this program is $20 million per year and is matched by municipalities, to leverage approximately $40+ million of improvements. It is estimated that this will amount to over $400 million in upgrades over the next decade.

As part of the preparation of this document, municipal staff was requested to identify potential projects that could be considered during the period 2005-2007, as an indication of overall requirements.

The Minor Capital Program is intended to address improvements to the MRN to enhance efficiency and safety, which could include:

- New road construction or widening
- Intersection improvements, traffic signals
- Pedestrian facilities
- Structures
- Transit-related road improvements

$170 Million on Minor Road Capital Projects Since 1999

Since its inception in 1999, over $170 million has been spent on 226 projects. Examples of projects funded over the past four years include:

- *Scott Road Hill reconstruction and widening – Surrey*
- *Southridge Drive (formerly referred to as Marine/10th Connector) – Burnaby*
- *64th Avenue (202nd St. – 204th St.) widening – Langley Township*
- *Rehabilitation of Mount Seymour Parkway Bridge Deck – North Vancouver District*
- *Reconstruction of Columbia Street retaining wall – New Westminster*
- *Reconstruction of Stanley Park 'S' Curve – Vancouver*
- *232nd Street Bridge reconstruction – Maple Ridge*

Examples of potential projects[11] under this Minor Capital Program include:

- Widening of King Edward underpass at Highway 1 (Coquitlam);

[10] *A mechanism such as a construction price index is used to determine this increase rather than the consumer price index (CPI).*

[11] *At the time of preparation of this paper not all municipalities had identified potential projects for this period, nor had they provided cost estimates for all projects. This paper uses project information received as of September 2003.*

- River Road corridor improvement program (Delta);
- Replacement of the 232nd Street bridge (Maple Ridge);
- Granville Street bridge ramp improvements (Vancouver).

Capital for GVTA-Owned Bridges

During the period 2005-2007, it is proposed to allocate $32.5 million for continued rehabilitation and ongoing maintenance to these bridges.

Improving Existing Regional Road Efficiency

In the next few years, it is proposed that the GVTA, with its municipal partners, review the MRN's operational efficiency at key locations. This will identify opportunities to enhance network and intersection performance with improvements such as modified traffic signal timings, implementing signal co-ordination along appropriate corridors, and installation of left-turn bays, where required. This could also include the implementation of signal priority for transit use, where buses are given priority through a signalized intersection over other traffic.

The Highway 15 border crossing is the busiest for trucks in all of Western Canada.

It is also intended that problematic congestion along specific regional corridors be reviewed with affected municipalities. To reduce congestion, it may be necessary to consider and pursue, for example, the elimination of on street parking along a portion or portions of a regional corridor. It may also be necessary to eliminate left-turn movements at or between intersections along a regional corridor.

Since the current regionally funded network consists of over 2,200 lane-kilometres throughout the region, it is anticipated that corridor management plans be developed annually for several regional roads. This would also provide valuable information in evaluating the overall corridor performance of regional roads.

Provincial Gateway Program

The province has initiated a multi-year phased project, the "Gateway Program" to address some of the highways under its jurisdiction. GVTA staff will work with the province on the Gateway and other project planning and policy development programs, on the basis that continued involvement or support by the GVTA in specific project approvals or implementation, for those projects outside the scope of this plan or the LRSP, would require an amendment to the GVTA's Strategic Transportation Plan.

The provincial initiative may potentially include:

- Widening the Port Mann Bridge;
- Improvements to the Pitt River crossing;
- Construction of the South Fraser Perimeter Road (SFPR);
- Changes to Highway 99, including the widening of the Massey Tunnel;
- A connector between Highway 1 and Highway 99, in the vicinity of the Serpentine River.

The Gateway Program is currently in the process of confirming the rationale and feasibility for undertaking Highway 1, SFPR, Highway 99 and related network improvements, in a 10-year horizon and developing an implementation and funding strategy.

The SFPR has long been identified as a priority by regional and municipal transportation plans. Without it, investment by the GVTA in the NFPR could create an imbalance in traffic on the north side of the Fraser, with a significant negative impact on New Westminster, in particular. Similarly, improvement to the Pitt River crossing is seen as a high priority to enhance the investment in the Fraser River Crossing.

The widening of the Port Mann Bridge requires more analysis to determine its implications, from both a traffic impact and growth management perspective. While not identified in the LRSP, given its critical role for goods movement and severe congestion levels, it is considered that widening of this facility deserves serious consideration. An important factor will be the

funding and tolling regimes and policies that the province adopts.

While many of the Gateway Program projects are compatible with the LRSP, the concept of widening Highway 1, within Vancouver and Burnaby, raises many community, social, environmental and other issues that will need to be considered. It would be a major challenge for municipalities and the GVRD, particularly as it relates to the LRSP.

Any investments made to Highway 99 are more conceptual in nature, at this time, and are being considered as a longer-term option, although it should be noted that they are not currently part of the LRSP. Once their effects on regional and municipal plans are clearly understood, these projects should be addressed within the context of updated long-range growth management and transportation plans.

The extent to which the identified projects would be implemented depends on a number of factors. It is estimated that the total capital cost of these projects will be in the range of $3 to $4 billion. Therefore, funding is a major consideration, as the availability of public funds is severely constrained in this region. A user-pay funding approach would provide some of the necessary funding. Other important factors that need to be considered are the projects' compatibility with municipal plans and their impact on the transportation system.

Streamlined Border Crossings

The four border crossings in the vicinity of Greater Vancouver represent a major gateway facility, with passenger flows totalling 7.1 million annually and freight worth an estimated $15 billion annually, for the Pacific Highway truck crossing alone.

Since 1999, the GVTA has been working in partnership with the International Mobility and Trade Corridor (IMTC) Project, a bi-national coalition of government and business entities, to identify and promote improvements to cross-border mobility and security. The U.S. government funds the IMTC, with matching grants from public agencies on both sides of the border. To expedite the flow of people and freight across the border, the IMTC has been involved with several new technology applications.

Border Infrastructure Program Projects in GVRD

Location	Description	Cost $M
Knight Street	Left turn bays at 6th Ave, 33rd Ave., 49th Ave., and 57th Ave.	11.5
Highway 10	Widening (122 St. - 172 St.)	42.0
Highway 15	Widening (32 Ave. - 88 Ave.)	80.0
Hwy 91 & 91A	Queensborough Bridge North interchange	33.0
	New interchange at Hwy 91A / Howes St.	25.0
	New interchange at Hwy 91 / 72 Ave	10.0

Major developments include the following:

- The Canada/U.S. joint Nexus pre-clearance program, which was introduced in 2003;
- ITS applications to increase cross-border freight throughput and enforcement, while reducing operating time and costs. These include electronic clearance and weigh-in-motion systems; and
- Advanced traveller information signage along I-5 or Highway 99 to advise drivers of border conditions.

In 2003, the federal government and the province of British Columbia committed $211 million to improve transportation access to the four border crossings. The GVTA has been working with the federal and provincial governments in the identification of and co-ordination of such improvements. These include the widening, to four lanes, of Highway 10, between 122nd and 172nd Avenue and Highway 15, between 32nd and 88th Avenue; interchange improvements to Highways 91 and 91A; and intersection improvements to Knight Street.

Regional Roads – Structures

The operations, maintenance and rehabilitation funding the municipalities currently receive from the GVTA does not cover costs associated with major structures on the MRN. At the time the MRN was developed, the issue of whether or not the GVTA

would be either the provider of funding in the form of limited 'grants' to municipalities on a selected basis, or the complete financier of regional road needs, including structures, such as bridges, was never resolved.

There are two new programs that could potentially be implemented to deal with annual operating and maintenance costs, rehabilitation and replacement costs, as well as the costs of seismic retrofitting on MRN structures:

1. An allocation of approximately $750,000 annually to fund the operating and maintenance costs for municipal structures on the MRN, and
2. Capital funding for the rehabilitation, replacement and seismic retrofitting costs of these structures

A $9 million annual Capital Program (similar to the Major Capital Program for roads) could be established to accumulate the borrowing authority needed to address these projects as they arise.

It should be noted that with the implementation of such an ongoing program, the GVTA would essentially be funding almost all MRN costs. However, it would still have only have a limited role as to how these 'regional' roads are managed with respect to matters, such as parking regulations, the provision of HOV and bus lanes, traffic regulations, and others. At this time, it is recommended that any decision to expand the funding of the MRN to include structures should be considered within the broader context of the role and responsibilities of the GVTA. Accordingly, the proposed allocations are not included in the Outlook financial projection.

2005- 2007 Roads Program - Summary

From 2005 to 2007, the GVTA will initiate a number of road projects with the following expenditures:

- $60M - Minor capital funding for projects related to improving the efficiency and safety of the existing MRN;
- $32.5M (3-year total) - Funding for capital work on GVTA-owned bridges;
- $230M - Major capital for regionally significant road projects both on and off the MRN;
- $81M (approx) for Operations, Maintenance and Rehabilitation.

Continue to Improve Efficiency

Transportation service and facilities require significant investment. As only a portion of the cost is borne by users, the GVTA must ensure that taxpayers' dollars are invested wisely and that there is continued focus on operating efficiencies.

Service Delivery

Throughout the fall 2001 financial consultation, many stakeholders expressed a desire for the GVTA to deliver bus service more efficiently. In response, the GVTA introduced the Community Shuttle service, which allows minibuses to operate on less-utilized transit routes. Over the next decade, it is expected that around 13% of bus services will be provided by Community Shuttles.

Consolidate and Refurbish Facilities

Several bus maintenance facilities have been identified as inefficient and needing replacement. The largest depot in Greater Vancouver (Oakridge) is more than 50 years old and requires major investment. Instead of rebuilding, the GVTA is relocating to a new site where a modern facility will be developed, eliminating the burden of maintaining existing operations during the rebuild. The new Vancouver depot is targeted for completion by 2005. Investigations into disposal options for Oakridge will begin in late 2003.

On the North Shore, there are currently two small depots – one of which needs to be replaced, as it is also more than 50 years old. The GVTA will work with North Shore municipalities to define options for more efficient service delivery and depot space, and have a solution by 2007. Finally, it will be necessary to replace the Heavy Fleet Maintenance Centre in Burnaby. This facility currently shares the same site as an operating depot. By the end of the decade, it will be necessary to develop a separate Heavy Fleet Maintenance Centre and expand the Burnaby depot to accommodate the larger fleet.

Expanded Use of Assets

The GVTA's considerable asset base, including its people and facilities, offers opportunities for revenue generation. For example, opening the Waterfront Station to private ferry operators allows more efficient use of current assets and offers revenue-generating opportunities. Similarly, a stand-alone heavy repair centre might offer opportunities to provide services to private sector bus providers, as well as other transit systems across the province. Another way to expand use is through sponsorships and partnerships that offer revenue generation. The U-Pass is another

example of a sponsorship that will provide some return to the GVTA.

Intelligent Transportation Systems (ITS)

Expanded Use of Technology

Intelligent Transportation Systems (ITS), referred to as the application of transportation related technologies, has the potential to improve the performance, safety and efficiency of the regional transportation system, as well as customer services. ITS and technology will transform transportation in the next decade in Greater Vancouver. The GVTA, through it's subsidiary, the ITS Corporation, will be coordinating and implementing many initiatives to assist in achieving these efficiencies. The continuing work of the GVTA and other agencies in the ITS Corporation will, by 2009, result in smart systems that will improve system efficiency and travel experience for users of all modes. Delays, congestion and traffic accidents take a heavy toll in lost productivity, lives, and wasted energy. ITS enables people and goods to move more safely and efficiently through a state-of-the-art intermodal transportation system.

ITS applications for the GVTA services include the following:

Travel SmartCard

Already the GVTA has one of the most advanced transit ticketing systems in North America and this provides the backbone for expanding the system. By 2009, there will be an integrated stored value card that will allow transportation system users to ride transit, pay for tolls and parking, and potentially make other small cost transactions from vending machines, public telephones, and others. The GVTA is working on preparing a business case to develop a regional multi-application smart card program. The GVTA will be actively working with partners in the transportation industry and in other sectors, such as finance and telecommunications, to make this a reality within a decade. The capital cost of the travel smart card program is estimated to be approximately $40 million for the GVTA portion.

The benefits of introducing a SmartCard will allow users a more flexible approach to pricing and paying. For service providers, it will provide data to achieve efficiency, reduce both boarding times on transit and transaction times to pay tolls, as well as lowering costs, in general.

Advanced Traveller Information Systems (ATIS)

ATIS will deliver transportation data and information directly to travellers, either in pre-trip mode (web site, cable TV, etc) or en route media (through dynamic message signs, personal devices, in-vehicle units, etc), empowering them to make better travel choices such as using alternate routes, taking another mode, or re-scheduling or deferring their trips. ATIS will make travel more convenient and timely, allowing travellers to avoid driving into congested locations. ATIS will involve integration of data and information from many other agencies in the public and private sectors. Data warehousing in support of ATIS and operations will also be developed.

Regional Traffic Management

Regional traffic management employs a variety of relatively inexpensive detectors, cameras, and communication systems to monitor and respond to traffic conditions on major arterials and highways. This area of ITS provides applications, such as incident management (which seeks to detect, verify and respond to incidents quickly) and optimization of signal timings, to improve the flow of traffic in the region and make better use of the existing infrastructure. Incident management allows the efficient response to accidents, hazardous spills, and other emergencies in an intelligent and coordinated manner. The estimated capital cost of the highway incident management system will primarily be borne by the BC Ministry of Transportation and will integrate with the regional transportation network.

Public Transportation Services

Through the deployment of advanced technologies such as the Global Positioning System (GPS), etc. the convenience, reliability and safety of the public transportation system can be significantly improved. These systems consist of the following areas:

- Transit Management Systems that integrate fleet communication, automatic passenger counting (APC), automatic vehicle location (AVL), computer aided dispatching (CAD) for dial-a-ride and custom transit systems and control technologies to improve the overall planning, scheduling and operations of the transit system.
- Automated Passenger Information Systems (APIS) that provides transit riders real time information to make informed travel decisions via in-vehicle enunciators/displays, terminal or wayside based information centres, telephone

information systems, cable and interactive TV, and the Internet.

- Electronic Fare Payment System or Travel SmartCard, which makes fare payment more convenient to transit users and provide the intelligence and flexibility GVTA needs for its timed zone fare system.
- Traffic Signal Priority (TSP) systems that allot priority at signalized intersections to transit based on their service and operation parameters such as schedule adherence status, passenger load carried, and others.

It is estimated that the capital cost of full GPS on the transit fleet in 10 years is approximately $4 million including in-vehicle units, field communications and integration.

It has been estimated by U.S. Transportation Department in 1996 that, over a 10 year period, the deployment of the transit management system, the automated passenger information system, and the electronic fare payment system of the Advanced Public Transportation System could accumulate a total benefits between $66 million and $1.27 billion.

Regional Traffic Management Centre (TMC)

Regional traffic management centre (TMC), a multi-agency facility that acts as the hub for all data and telecommunications to support all ITS applications and functions in the region. The TMC would contain all data management infrastructure to collect, process, store and disseminate information. The TMC would also house a control room with staff to monitor traffic conditions, verify incidents, and respond. Transit management systems would also be operated in the TMC.

Reduce Demands on the Network

While much effort will be directed to expanding the system, it is generally understood that it is impossible to build a way out of congestion, due to the high costs of capacity expansion. This was reflected in *Transport 2021*, which recognized the requirement to manage both the supply and demand of the transport system.

Research shows there are considerable gains to be achieved by reducing or shaping demands on the transportation system. To further this aim, over the next decade, the GVTA will work on a number of innovative initiatives.

Coordinating Land Use and Transportation

In partnership with the GVRD and the region's municipalities, the GVTA will continue to promote better land use planning. This is critical because how people and activities are arranged in this vast region is a primary determinant of the demand for travel.

Employment Location

As noted earlier, the trend towards the growth of suburban office parks in remote locations is a challenge. These developments are automobile-oriented and very difficult to serve by conventional transit. Continuation of this trend will lead to ineffective transit and gridlocked roads.

Density Around Transit

The GVTA will work with the GVRD and municipalities to explore a range of possible incentives to encourage employment, higher residential densities and lower cost housing near major transit developments.

Demand – Side Actions

There are many actions that can be taken to influence the demand side of travel:

Transportation Demand Management

As discussed earlier, the LRSP (which the GVTA is mandated to support) was premised on the collective willingness to pursue the transport strategy in the 1993 *Transport 2021* Long Range Transportation Plan, which, in summary, included three related strategies:

1) **Manage land use** to reduce the need for new transportation facilities and increase the viability of alternatives to the private auto.
2) **Manage transportation demand** to provide 'carrot' incentives for reduced automobile use, such as carpooling, vanpooling, better transit, and other (perhaps unfortunately described) 'stick' programs, such as managing parking, bridge tolls and other transportation pricing measures[12].
3) **Manage transportation supply**, by adding more roads and transit in a way that supports the land use and transportation demand management objectives.

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[12] *Implicit was an assumption that some form of user charges would be in place in the form of a combination of tolls, fuel taxes, and parking charges to raise $1.1 billion/year in 2021. Collectively, the revenues were intended to pay for improvements for both roads and transit services and facilities.*

These three strategies were expected to achieve greater efficiency in the movement of both goods and vehicles, and a substantially more appealing and efficient transit system that would attract a transit market share of rush-hour travel of 17% in 2006, compared to 11% today. TDM in particular was perceived as a key component. Without it, much of the supply, particularly rapid transit, could not be so readily justified. In essence, a comprehensive TDM strategy was needed to both substantially fund road and transit expansion and to create the demand.

To date, as has been noted by many stakeholders, the public and MRTAC, progress has been limited with respect to demand-side actions.

Incentives or 'Carrots': The GVTA has recently been expanding its 'carrot' type of TDM programs. These include the successful UBC/SFU U-Pass and Employer Pass Programs and the planned 'TravelSmart' individualized marketing program. In addition, there is ongoing support for carpooling and vanpooling. However, even these are dependent on other factors, such as the expansion of the transit system, more bus and HOV lanes, preferential parking for car/vanpools, among others. Success in these areas has been more limited, in part due to funding constraints and in part due to local factors, such as opposition to additional transit lanes

Financial Measures or 'Sticks': According to the assumptions on which the LRSP was founded, many TDM actions should have been established by now. For example, by 2003, there should have been tolls on all bridges in the region, most employment should have been directed into regional town centres rather than office parks, fuel taxes should have been significantly higher and there should have been a coordinated regional parking strategy that deals with the supply (through bylaws), regulation and pricing of parking. The revenues from these measures were intended to fund strategic road improvements, as well as three rapid transit lines and a considerably expanded bus service by 2006. In addition, these measures were intended to shape demand to justify the transit investment and create a more efficient road system.

Tolling –Keeping our options open

A common theme throughout the consultation on the discussion paper was that some form of 'system' based tolling similar to that in place in San Francisco, New York or London may well be inevitable at some point in the future. Moreover, the significant scale of future transport investments suggest that such a move may need to be an integral part of the mix to both make our transportation system more efficient and to raise the funds for these critical investments.

The shift to more direct user pay at the time and location of use would also offer the potential to reduce fuel taxes over time. While necessary in the short- to medium-term, these taxes create problems in the Lower Mainland. Fuel tax revenues per vehicle are likely to decline over the coming years due to rising prices, changing vehicle technologies, consumers moving to more efficient vehicles as a response to price increases and the sometimes considerable tax leakage across the US border from the rapidly growing communities south of the Fraser.

While public acceptance of the broad application of tolls may be more than a decade away, it does suggest that a vision for future funding needs to be developed now in order to keep options open. This has been expressed by the professional municipal and regional staff on MRTAC and it is also the view of many members of the Round Table. This is also important so that short-term project-specific, tactical approaches to tolling individual new projects such as the FRC and elements of the planned provincial gateway project do not compromise the ability to eventually evolve to a broader region wide system as the transportation system changes and public acceptance may grow.

Because of this need, it is planned to begin a process in 2004 to define a detailed tolling policy and migration path for the region, in concert with the municipalities, the province and stakeholders. The objective will be to provide a coherent framework that can be adopted by both provincial and regional agencies by 2006.

Developing a Parking Strategy

The recommended move towards using increased parking revenues to fund the plan, highlights the need to prepare a broad parking strategy, as called for in *Transport 2021* and the GVTA's own 2000 *Strategic Transportation Plan (STP)*. However, coordinating the supply, regulation and pricing of parking in an equitable manner across the region's diverse communities raises many issues. It will require the harmonization of municipal bylaws and regulations, as well as the resolution of issues regarding pricing of

parking and the means by which it should be taxed. Much of this initiative is outside the direct mandate of the GVTA. A joint process, with the GVRD, should be initiated in 2004 to prepare a coherent regional parking plan by 2006. Many aspects of developing a strategy would have to be led by the GVRD, in particular, the review and harmonization of municipal by-laws and regulations. The details of the proposed approach to deal with the recommended adoption of an area or per stall tax as part of the funding strategy is dealt with later in this plan.

Funding – Taxes and User Fees

To some degree, how the transportation system is funded, affects how much and when it will be utilized. For example, if the approach to funding relies more on transportation-related sources, such as fares, fuel or parking taxes or tolls, then these sources have an effect on the patterns of usage and the efficiency of the system itself that does not occur with more general taxes, such as property taxes.

If the system is funded directly from general sources, there is no direct financial "signal" to commuters to change travel behaviour. As a result, there will be no change in system usage, levels of congestion and system inefficiency. Funding from transportation related sources however could influence system use, as user costs vary with the amount of use and time and location of consumption.

In developing a funding strategy, a balance must be found between these two approaches. The broader community benefit of improved services suggests the need for some contribution from broad tax sources. However, the inclusion of a substantial element of transportation-related funding can improve the system itself.

The funding package identified later in this document attempts to strike a balance between measures related to general benefits to the community and those related to use of the transportation system. The package also recognizes the reality of the funding sources presently available to the GVTA.

Road User Priorities

Previous plans have sought to establish road user priority, with a particular emphasis on transit vehicles, HOV and goods movement. In the last decade, there have been some improvements to HOV and transit vehicles; however, they were not as extensive as planned. As a result, the region has been subjected to slower, less reliable and more expensive bus services.

It is important to continue to press for greater transit and HOV priority, and the GVTA could also consider linking its road funding to municipalities to specific transit performance requirements on the road system.

A greater emphasis on measures such as bus lanes would make bus service more attractive, efficient, reliable and cost-effective.

Facilitating Goods Movement

While *Transport 2021* contained many recommendations to assist goods vehicles, few have been implemented. In order to supplement its greater investment in roads for goods movement, there should be a parallel approach to manage the road space, although the resolution of some of these issues will not be achieved by a "quick fix".

The following general approaches could be considered for implementation:

- Establish and coordinate a process with the municipalities and the province to permit truck traffic to better avoid congestion, wherever feasible, by separating truck flows from auto flows at bridge heads and on existing or new portions of the Major Road Network, consistent with cost-effectiveness;
- In consultation with municipalities, develop minimum service level standards for major truck links to trigger actions for improvements, if service drops below the accepted level;
- Work with the province and municipalities to consider the feasibility of opening existing HOV lanes to trucks in the off-peak period, provided

that the performance or safety of transit and other users is not compromised.

Powered Two-wheel Vehicles

The role of motorcycles and other two-wheeled vehicles has not been adequately addressed in previous transportation plans. These vehicles are widely used by many of the region's residents, and policy direction is lacking concerning their role within the regional transportation system.

To address this, the GVTA will work with the BC Coalition of Motorcyclists (BCCOM), ICBC and other agencies to develop appropriate policies regarding the role and priority of motorcycles and other two-wheeled vehicles on the regional transportation system. Key issues that should be reviewed include road use priority, parking provisions, safety, emissions and noise.

AirCare Review in 2004

The current AirCare program is due for review in 2006. The GVTA is developing a process to review the program and determine the future of AirCare needs after 2006. Because of the multi-jurisdictional nature of air quality management that includes the GVTA and its AirCare subsidiary, the GVRD (who prepare the region's *Air Quality Management Plan*) and the provincial government, this will be a joint review led by the GVTA.

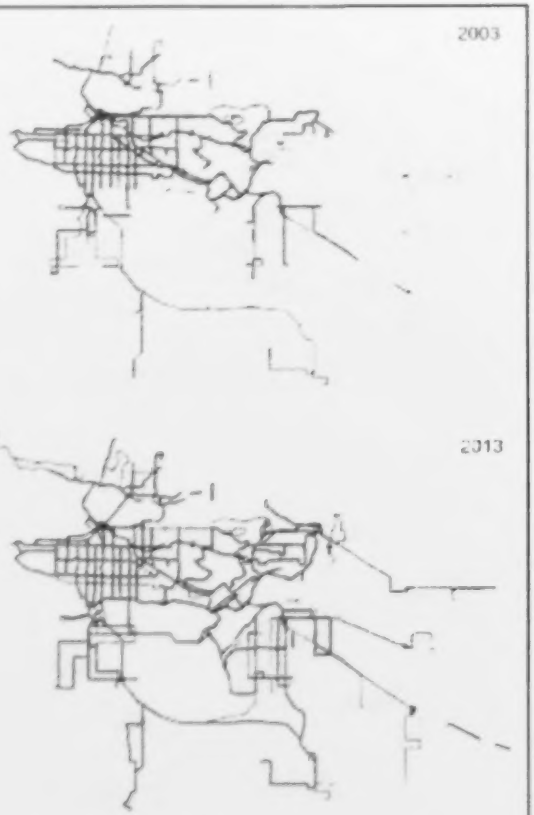
It is anticipated that this review will take place by the summer of 2004, with a decision on the future of AirCare to be made early in the fall. In addition to government agencies, significant stakeholder and public involvement will be required for the health and environmental aspects of the program, among broader considerations.

Monitoring

The progress of the Three-Year Plan will be reviewed on an annual basis, with the understanding that it may be necessary to adjust the Plan as circumstances change to ensure effectiveness and affordability. An ongoing program to collect the data necessary for the effective and efficient management of the system will facilitate this review.

5. BENEFITS OF THE PACKAGE

Many of the improvements outlined in this document are not new ideas. Some have been around for decades – however, implementation has been a challenge. This was recognized by the GVRD, which worked from 1996 to 1999 to establish the GVTA. Some improvements will be undertaken by the GVTA alone, while others will involve partnerships with different levels of government. If fully pursued, the Outlook would bring extensive, tangible improvements to transit users, freight carriers, car drivers and cyclists.

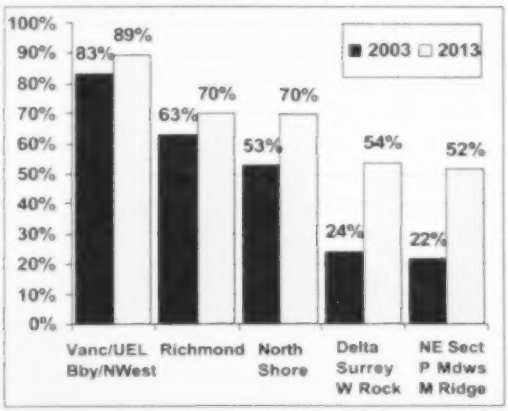


The maps compare routes with 10 min or better rush hour service for today, 2003 and in 2013 with Outlook transit package of 1600 buses, RAV, NE, third SeaBus, etc.

Benefits to Transit Users

Many transit users will see major improvements in both the level of service, reliability and speed of transit service. In particular, this will be achieved not only in the central part of the region, but also in many suburban markets, which are becoming more dense and much more conducive to transit use.

Under the Outlook, all sub-areas of the region would have a minimum standard of 10-minute rush-hour transit service available to over 50% of residents



The recent trends to higher density development in some regional town centres and emerging suburban pockets offer opportunities to improve ridership.

The transit strategy would offer more frequent service to the central core communities, as well many of the transit-conducive markets in communities that are not well served today. Overall, it will result in providing a minimum of 10-minute peak period service to at least 50% of residents in all sub-regions of Greater Vancouver. At this level of service, transit becomes a desirable alternative to the car.

As shown in the maps, a greater degree of the region, particularly in the Northeast Sector and South of the Fraser, will see rush-hour transit service at no more than 10-minute headways.

At this level of service, most passengers will not require a timetable – on average, they would wait less than five minutes to board a bus or transfer between services. Today, the availability of this level of service varies widely, from an estimated 83% of the population in Vancouver, Burnaby and New Westminster, to around 22-25% in the Northeast Sector or South of the Fraser River. If the Outlook scenario were currently in place, the 10-minute standard of transit service would be available to over

50% of the population of each sub-region, within 400 metres of their residence.

Overall, approximately 65% of the region's population would enjoy this service level and transit would become a much more attractive and realistic option for another 400,000 residents.

Estimated Impact of 2003 Population

Within 400m of 10 min transit service	Today's Transit	Service in 2013
Population	1,064,000	1,402,000
Dwellings	468,000	587,000
Area (Hectares)	353	568

Transit Ridership and Market Share

The Outlook scenario would significantly increase transit ridership by around a third, from an estimated 62,000 rush-hour trips in 2003, to 82,000 in 2013. Total annual ridership would climb to around 181 million in 2013, compared to 135 million today.

Transit's market share of all travel would increase from approximately 11% of rush-hour trips today, to approaching 13% in 2013. Greater increases would be seen in specific corridors, such as the RAV and NE Sector corridors, to universities and colleges, to regional town centres and into downtown Vancouver. By the end of the period, transit travel into downtown Vancouver is projected to exceed automobile travel. These increases are significant, as most other major metropolitan areas in North America have declining market shares. However, the region-wide figure of 13% is still less than the regional target of 17% that was expected by 2006. That target was based on a package of significant demand management actions, such as region-wide bridge tolls and extensive HOV lanes.

Clearly, the proposed package of transit investments will broaden benefits to residents across the region for a variety of trips. In addition, as is outlined below, it will also lead to reduced travel times by car.

Benefits to Road Users

Even though the Outlook package of transit improvements would offer greater travel choices to considerably more residents and therefore, boost the transit market share, there will still be more cars and trucks on the roads than today. In total, it is estimated that rush-hour auto trips will increase from 332,000 in 2003 to 380,000 in 2013, driven largely by population growth.

Without the overall package, an estimated 5,400 additional cars would travel on the road system during the morning rush hour in 2013 – roughly the equivalent of the northbound rush-hour traffic emerging from the Massey Tunnel or crossing the Alex Fraser Bridge.

If the total package of GVTA-initiated projects, such as the Fraser River Crossing and North Fraser Perimeter Road, are completed, along with the provincial projects, such as the South Fraser Perimeter Road, there will be significant travel time savings for users, and travel speeds are forecast to be the same as today (or around 5% higher than they would be under current trends).

Sample Travel Time Savings

Year 2013 Average Transit Travel Times (minutes)			
Origin-Destination	2003	With 10-Year Outlook	Est. Time Savings
Richmond Centre-Downtown Vancouver	44	28	16
Coquitlam Centre-Surrey City Centre	60	30	30
YVR – Lonsdale Quay	60	44	16

Year 2013 Average Auto Travel Times (minutes)			
Origin-Destination	2003	With 10-Year Outlook	Est. Time Savings
Maple Ridge – Surrey Guildford	65	30	35
Pitt Meadows – Richmond Centre	95	69	26
City of Langley - YVR	80	66	14

While the greatest time savings will often be achieved in corridors with the larger projects, the combined effects of road improvements and higher transit usage will lead to better travel times for many users.

Benefits for the Economy

The Outlook scenario for 2013 and moving towards a healthy regional transportation system is critical to the regional economy in many ways:

- Transportation and related industries are a significant source of employment, local expertise and economic output;
- A regional orientation towards transit and a mature and well-maintained road network supported by a compact development pattern ensure people and goods move efficiently;
- Reductions in the cost of personal, business and public transportation, leaving resources available for investment elsewhere in the economy;
- The region will be a more attractive place to invest for service, manufacturing and transportation activities.

Transport 2021 estimated the cost of congestion (relative to free flowing traffic conditions) to be $110 million annually, as of 1993. In 1999, the BC Trucking Association (BCTA) estimated the cost to the trucking industry alone at $500 million annually. Some recent estimates place this in the range of $750 million to $1 billion today.

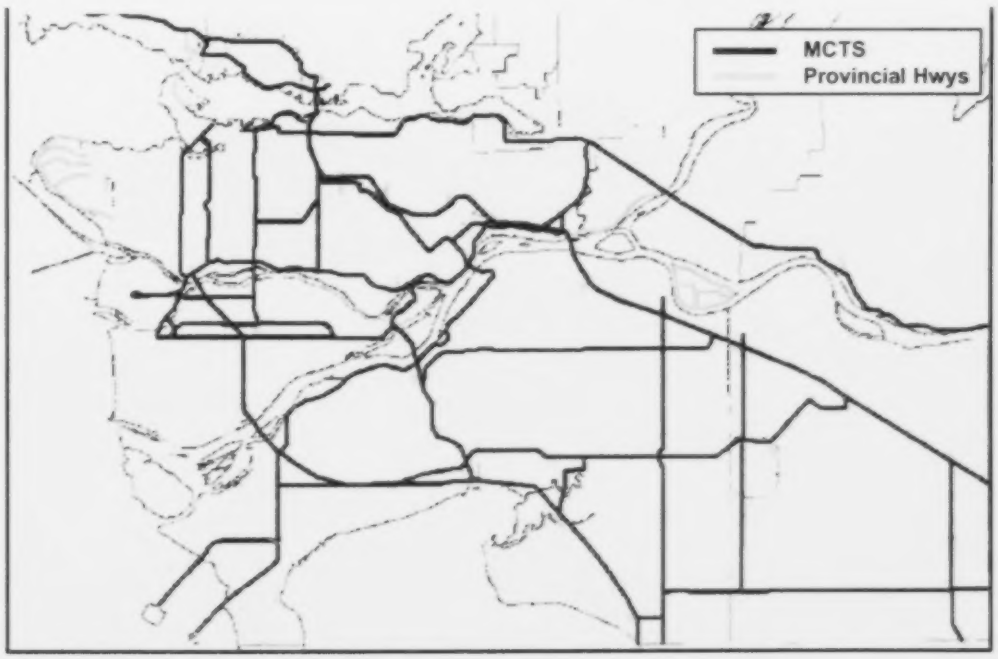
The 10-Year Outlook package would improve conditions for the regional economy, in general, and goods movement, in particular, by:

- Strategically expanding road facilities, including providing key "missing links" in the transportation network;
- Working with the province to determine the feasibility and implementation of measures, such as dedicated goods-only lanes, so that trucks *avoid* congestion by separating them from general traffic;
- Expanding bus and rapid transit service to ease traffic congestion by encouraging drivers to use alternative means of transportation in key markets.

It also greatly supports the efforts of the Greater Vancouver Gateway Council (GVGC) to deal with goods movements. The GVTA has been working with the GVGC to recognize those roadways critical to goods movement. These are outlined in the GVGC's Major Commercial Transportation System (MCTS), which identifies essential roads and other links to seaports, airports, and major rail or truck terminal facilities.

The implementation of projects along certain

The Major Commercial Transportation System (MCTS) designates those roads and other facilities considered to be important to goods movement. It comprises of facilities designated by the Greater Vancouver Gateway Council. Many of the proposed road improvements will enhance the MCTS.



corridors, such as the North Fraser Perimeter Road, would provide much needed additional capacity for commercial goods movement, or provide a new route that would virtually eliminate neighbourhood infiltration by truck traffic. Such enhancements would give more priority to goods movement than currently exists.

Combined with these improvements, the proposed actions to allocate a greater priority to trucks on major roads will further enhance goods movement and boost the regional economy.

As part of the preparation of this discussion paper, the GVTA commissioned an economic analysis of the Outlook from InterVISTAS Consulting Inc. The following summarizes the potential economic impact of the Outlook. *Economic impact* is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation.

Two of the most common ways to assess economic impact are in terms of the dollar value of output produced or person years (full-time equivalents or FTEs) of employment generated. Other measures include value-added (GDP) and value of capital used and/or created.

Types of Economic Impacts

Only economic impacts in British Columbia are examined. There are also likely to be economic impacts in the rest of Canada. For example, the rolling stock for SkyTrain or the RAV line may be manufactured in Ontario or Quebec.

Construction Impacts

The building of new roads and transit systems or the upgrading of existing ones will require raw and finished materials, equipment, and will employ people in a range of fields. These activities will support employment, GDP and economic output.

These impacts have been estimated using economic multipliers produced by BC Statistics. The estimated employment, GDP and economic output generated by construction projects are shown below:

Economic Impacts of the Construction of the Transportation Projects in BC

Impact Type	Employment (Person Years)	GDP ($m)	Economic Output ($m)
Direct	19,716	1,427	3,418
Indirect	8,184	503	1,174
Induced	3,335	213	392
Total	**31,235**	**2,142**	**4,984**

On-going Operating and Maintenance Impacts

Once enhancements to the transportation system have been made, there will be new on-going operations and maintenance costs. These costs will have an economic impact in BC. The economic impact analysis has focused only on those costs that are additional to those already being spent on the current system. The table below displays the employment, GDP and economic output associated with incremental operations and maintenance activities.

Economic Impacts of Ongoing Operations and Maintenance in BC

Impact Type	Employment (Person Years)	GDP ($m)	Economic Output ($m)
Direct	2,698	154	341
Indirect	947	54	124
Induced	369	24	44
Total	**4,013**	**232**	**508**

Impacts on Economic Development

It is well known that the ability of a region to attract trade and investment depends critically on the transportation and other infrastructure that is available. The economic impact of the GVTA investment program is not confined only to the jobs created during construction or the on-going jobs associated with operation of the new infrastructure. Investment in urban transportation infrastructure can attract new businesses to the region and create new jobs.

A recent U.S. Federal Transit Administration report found that every 1% increase in transit vehicles in service resulted in a 0.04% *annual* increase in regional value added per employee, and a .004% increase in per annum increase in economic growth. While these figures may seem small, when compounded over a 10-year period, a 20% increase in transit presence would

add just under 1% to Vancouver's economic activity, or roughly $300 million after 10 years.

While these seem to be abstract computations, it is possible to understand this concept with some other examples.

- The investment in the Canada Place cruise ship facility in 1986, along with airport investment, created 2,970 jobs associated with handling one million cruise ship passengers per year. These jobs paid roughly $120 million in wages and contributed $228 million in GDP.
- Investment in rail and highway infrastructure at the Roberts Bank port facility allowed the Port of Vancouver to increase its containership volume to over one million TEUs per annum. Increased container shipping through Vancouver has generated hundreds of trucking jobs, increased freight forwarder activity, increased ship chandlering (re-supply), etc.

Looking ahead, investment in urban transportation will have a number of effects on regional economic activity:

- The provincial roads gateway program is expected to play a major role in accommodating significant expansion of maritime container handling at the various Port of Vancouver sites. While specific economic impact figures are not available at this time, it is expected to be in the thousands, given that current container activity currently supports over 6,000 direct jobs.
- The streamlined border-crossing program is expected to support new or increased economic activity in several sectors. These include increased inbound tourism activity, Port of Vancouver's container services, and expected development of foreign trade zone activity at the Vancouver Airport and Port of Vancouver.
- The transit investment program will directly support tourism and the 2010 Olympic/Paralympics.
- The transit investment program and bicycle projects will have important quality of life effects in the region. Quality of life is a factor in business location decisions.
- The investment in roads and transit will improve regional productivity, consistent with the findings of the US Transit Administration study. Improved transit and road investment will reduce regional travel time, with SkyTrain, RAV and NES investments, in particular, resulting in large decreases in travel times. Travel time reductions improve productivity of workers who must travel while performing their duties. An even larger impact is in terms of individual commuting time impacts. While such impacts are not included in GDP measures, the value of these savings to commuters is significant

Tourism

Visitors to Vancouver make extensive use of the transit system, and generally comment favourably on it. At one time, a special publication, "Discover Vancouver on Transit" was produced to direct visitors to tourist destinations by transit. As the system changed, with the introduction of new services and different route numbers, keeping such the publication up to date became an issue when budgets were tight, and it was discontinued.

Tourism Vancouver deals with a large number of enquiries every day at its service locations, and sells a lot of transit tickets, as well as providing current information to visitors. The SeaBus and SkyTrain are used extensively by tourists to travel around the region, and are considered as attractions in themselves.

The decision to award the 2010 Winter Olympic and Paralympic Games to Vancouver-Whistler presents an opportunity to increase tourism in the region. Within this context, the transit system and the regional road network can be seen as an integral part of the tourist experience.

While the transit system is at capacity at peak periods and in the peak direction, there is significant off peak capacity available at the times and in places where tourists want to travel. The increased utilization of this capacity through better-targeted marketing would be a low cost, high return investment.

Benefits for Society

The development of the regional transportation system in accordance with the Outlook proposal for 2013 would create significant improvements to the social aspects of the system. As noted previously, there would be a substantial increase in the availability of transit at levels that provide effective, fast and frequent service.

In particular, additional service to the existing strong transit core markets, combined with the targeted expansion in the maturing suburban areas, such as town centres and higher density areas, will make a substantial difference. Overall, it is estimated that it would result in rush-hour transit frequency of 10-minutes or better for over 32% more residents and 25% more households.

Moreover, these improvements will focus on many of the lower income suburban areas – offering many residents transit services that are a real alternative to the private vehicle. For example, in both the NE Sector communities and those south of the Fraser River, the percentage of residents who have access to 10-minute rush-hour transit service would increase to over 50% from around 22-24%.

Similarly, the extension of Community Shuttle (minibus) services will allow many residents to experience new types of service that are better suited to local community-based trips. Further, these vehicles are much quieter than conventional diesel buses and would therefore be a welcome improvement to many residential neighbourhoods.

In terms of the disabled population – apart from the expansion in HandyDART – the introduction of the new low-floor wheelchair accessible trolleys in Vancouver and Burnaby will provide significant improvements. Due to their low-floor design, these new vehicles will offer dramatic enhancements in accessibility for both wheelchair users and the ambulatory disabled. Access by public transit to many facilities, such as Vancouver General Hospital (VGH), will become more feasible as a result.

In addition to trolley services, the expansion of rapid transit, with both the RAV and NES lines, will offer a smoother and easier ride for the disabled and will significantly improve their ability to move around the region over relatively long distances.

Community severance and isolation will continue to some degree as a result of mounting traffic volumes; however, it will still be lower than previously. While difficult to quantify in isolation, the traffic safety benefits of the Outlook package would also be appreciable.

Finally, improved information technology offering users better information and instructions on how to use services will benefit those residents who are transit dependent.

Benefits for the Environment

The Outlook outlines a range of transportation initiatives that will reduce the GHG, air quality and general environmental impacts of transportation. In particular, major expansion of bus service and the rail network and the implementation of a regional parking management strategy, will shift numerous travellers from the automobile to transit, substantially benefiting the environment.

Overall, it is estimated that less traffic would reduce greenhouse gases by up to 125 million kilograms.

There are a number of other significant initiatives the GVTA will undertake to address the environmental impacts of transportation:

- Replacing the region's zero emission electric trolleybus fleet with new state-of-the-art electric trolleybuses rather than diesels;
- Pilot test diesel electric hybrid buses, which reduce some air pollutants and also reduce GHG's by up to 50%, as an alternative to diesels for fleet expansion and replacement needs;
- Investigate the feasibility of other alternative fuels for GVTA transit buses;
- Introduce an alternative fuel vehicle program for GVTA, GVRD and other fleet vehicles;
- Examine the impact of the AirCare Program and determine the need for ongoing programs after 2006 to ensure that emissions can be further reduced;
- Re-instate the ACOR (AirCare On Road) emissions testing program for trucks and buses;
- Ensure that all new and replacement fossil-fuelled buses meet the 2007 emission standards.

6. FINANCE AND AFFORDABILITY

This section of the document first reviews the likely cost and impacts of the proposed 10-Year Outlook. It then discusses the proposed approach to funding the Three-Year Plan initiatives in this document.

Financial Implications of the 10-Year Outlook

The transportation initiatives presented in the 10-Year Outlook will require substantial investment. However, if the investments are not made, the region will pay in other ways – through increased travel times, reduced competitiveness, a lagging economy and environmental degradation. Consequently, it is not a question of whether there is a price to be paid, but rather, how to pay – directly or indirectly. In other words, do we want to commit to the region's plans in a tangible way to achieve a collective vision?

Potential 10 Year Capital Program Totals $3.9 Billion (estimates are rounded)

- Replace 1,300 bus, Community Shuttle and HandyDART vehicles ($600 m)
- Start the phased replacement of 114 SkyTrain Mark I vehicles with 72 Mark II's ($300m)
- Expand conventional bus and Community Shuttle fleet to 1,600 vehicles and HandyDART fleet to 350 vehicles ($200m)
- WCE – new stations and spare locomotive ($10m)
- Transit depots and maintenance of other transit infrastructure ($500 m)
- Bike Program* ($54 m)
- SmartCard/other ITS applications ($20m)
- 34 Mark II vehicles to expand service on existing SkyTrain lines ($200m)
- New SeaBus ($10m)
- RAV and NES rapid transit lines, and King George Busway (GVTA contribution - $800 m)
- Roads – Major Projects ($400m)
- Roads – Minor Projects and Bridges ($25 m)
- Fraser River Crossing ($600m – recovered by tolls)

**Cycling will increase in $1m increments from $3m per year in 2004 to $6m per year in 2007*

A financial forecast has been prepared for 2013, based on three broad service and financial needs:

- Ensuring a state-of-good repair of existing infrastructure and fleet, fleet renewal, and maintenance of current service levels;
- Meeting capital project commitments for road, transit, and other initiatives;
- Expansion of infrastructure and services.

In examining the financial requirements over the next 10 years, it is clear that there are a number of needs for which there is little flexibility. For example, maintaining a state-of-good repair of the roads is critical for the safety of all commuters. Fleet renewal, as buses and trains wear out, is required to maintain safety, service and control operation and maintenance costs.

While there have been service efficiencies and reductions in the cost of current operations over the past few years, there is now limited scope for further improvements. Efficiencies will continue to be pursued but they cannot be relied upon to provide enough additional funding to meet projected growth.

Impact on GVTA Budget

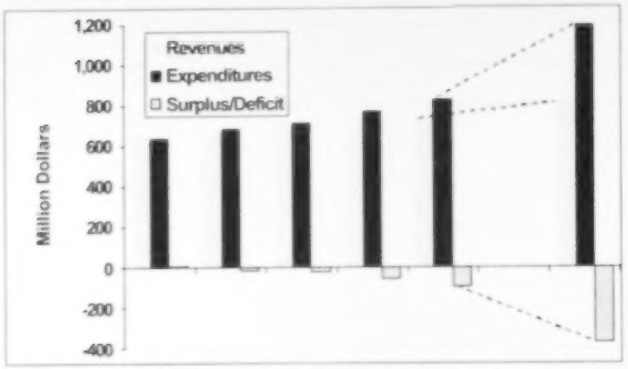
Based on the program outlined earlier, by 2013, the GVTA annual budget would reach somewhere in the range of $1.18 billion per year, a $540 million increase over the current $640 million annual operating budget. This estimate reflects the operating and debt service costs of the capital program outlined earlier and assumes that operating costs will increase at the rate of general goods and services inflation.

Closing the Gap

The range of funding sources available to the GVTA is the broadest of any of the major urban regions of the country. However, unless rates are increased, key revenues of fuel tax, transit fares, and property taxes will not grow at the level required to fund inflationary increases and the additional capacity required to meet population growth, let alone finance major new initiatives.

It is estimated that by 2013, assuming normal volume increases – without tax or rate increases – revenues would reach around $820 million, leaving a funding gap of some $370 million. If transit fares increased with inflation, this gap would be reduced by a further

$60 million, to around $310 million. This is still a significant challenge.



Year	2003	2004	2005	2006	2007	--	2013
Revenues	647	666	688	707	730		816
Expenditures	640	683	713	767	829		1185
Surplus/Deficit	7	-17	-25	-60	-99		-369

EXISTING AND POTENTIAL REVENUE SOURCES

Existing sources currently used

- Transit fares
- Gasoline taxes
- Sales tax on paid parking
- Residential & commercial property taxes
- BC Hydro levy
- AirCare fees

Existing sources currently unused

- Project tolls
- Benefiting area taxes
- Motor vehicle or commuter levies
- Parking stall taxes

Potential sources for which the GVTA would require new powers

- System tolls, congestion tolls
- Increased gas tax
- Area licensing fees
- Right-of-way fees
- Regional sales taxes

Unless the program was reduced, there are two strategies that could be applied to close the gap further, both of which are likely to be required:

(i) Raise more revenue locally

(ii) Secure senior government assistance

There are many existing and potential sources of revenue that the GVTA has the authority, or could request the authority, to access. These include a mix of both traditional and non-traditional sources.

All sources will need to be considered; however, it is likely that at least one 'new' source, such as a sales tax or some form of vehicle-related charge, such as tolls, will be required to help close the gap and raise revenues in the range of $100 to $200 million, by 2013.

In considering the scale of funding requirements, it is important to note that the capital budget identified for the Outlook program also serves to leverage considerable senior government and other partner funding in excess of a billion dollars[13].

Role for Senior Government

There is no question that it is important that Greater Vancouver's transportation system functions effectively. It is also important to the provincial and national economies that the region and its ports remain competitive. At the same time, it is apparent that the magnitude of investment required will need both federal and provincial funding to implement the scale of the program.

By 2013, it is expected that the provincial economy will have recovered and the prospect for additional provincial funding to assist the region would be stronger. However, a more significant prospect may be the federal government's stirring interest in urban regions, which are now recognized as major drivers of the nation's economy. That interest was recently confirmed in a speech by the Prime Minister designate, Paul Martin, in a speech to the Union of BC Municipalities conference on September 25, when he

[13] *This includes $900 million for the RAV project, an anticipated $170 million in provincial funds for the NES project (which in turn may leverage a similar federal contribution) and the allocation of Border Infrastructure Funds in the region. (e.g. BIF funds are being used to fund part of the North Fraser Perimeter Road system and possible improvements to Knight Street)*

said, "*. . . no matter how long it takes, we are going to provide Canadian municipalities with a portion of the federal gas tax.*" Furthermore, the federal government's commitment to the Kyoto Accord on Climate Change is likely to influence it to become more active in funding urban transportation, where many of the Greenhouse Gas (GHG) reductions can be made. For the federal Kyoto commitment to have substance, a particular emphasis must be placed on the funding of transit services.

For the past five years, both the GVTA and GVRD have been persistent in requesting the federal government to return some of the approximately $300 million it raises annually from the residents of this region in fuel taxes. It now appears that the prospects have never been better. For instance, if the federal government were to offer a federal gas tax transfer of 5 cents/litre, it would make the Outlook package more affordable.

As noted earlier, the 2013 funding gap is $370 million in 2013. The 2005-2007 funding strategy proposed in this document would provide $110 million, all from existing sources available in the *GVTA Act*. A 5-cents/litre federal gas tax transfer commencing in 2008 would generate an additional $130 million. Assuming the gas tax transfer and fares increase at inflation, the remaining balance required would be $80 million.

A Dilemma

Clearly, there is a financial dilemma – immediate funding is necessary, yet partnership funding is uncertain. Nevertheless, the requirement for transportation investments is urgent. The timelines to build major new facilities, such as bridges or rapid transit lines, can span up to a decade. Even the time required to purchase and operate new buses can be as long as two years, and for bus expansion to occur in 2005, orders must be placed early in 2004.

The recommended course of action is for the region to commit to the 10-Year Outlook so there is a clear goal to strive for, while preserving the objectives outlined in the various regional plans. In addition, it is recommended that steps are taken to ensure that funding is secured for the first three years to guarantee that there is some certainty of tangible action.

While making commitments for projects to be built and paid for in the future presents some risks, failure to secure immediate funding will put the transportation system in jeopardy. To some degree, the latter course would simply substitute the financial risk for threats to the economy, environment and overall livability.

Proposed Three-Year Strategy

Three-Year Capital Plan Summary

A $1.9 billion capital investment program is required to set a direction for the longer term and implement the proposed 2005-2007 transportation strategy:

- Replacing 492 bus and custom vehicles, (including new trolleys - $312 million);
- Maintaining infrastructure, including new Vancouver and North Shore depots and a new Heavy Fleet Maintenance Centre ($200 million);
- Expand bus and HandyDART fleet by 156 vehicles ($59 million);
- Progress payments towards the purchase of 34 Mark II vehicles ($84 million);
- WCE new station and spare locomotive ($10 million)
- GVTA contribution over the period for the construction of the Richmond-Airport-Vancouver and Northeast Sector rapid transit line ($396 million);
- $35 million per year allocation for Major Road projects ($105 million total for 2005-2007 – a further $125 million has been accumulated in earlier years);
- Completion of Fraser River Crossing ($600 million - as the facility will be tolled the annual debt service cost will not be funded from GVTA sources);
- Minor Roads funding of $60 million, leveraging over $120 million of municipal projects;
- GVTA-owned bridges and Transit Priority Measures and Facilities ($41 million);
- Bike Program ($15 million).

Revenue and Expenditure Projections

A revenue and expenditure forecast has been prepared for the proposed three-year program. No new revenue sources or increases to current rates are assumed. As indicated in the following table, existing revenue sources are not adequate to fund the proposed road and transit improvements.

Expenditures are projected to increase by close to 30%, from the 2003 budget of $640 million to $829 million in 2007. The majority of the increase is in debt-service cost.

With no rate increases or implementation of a new funding source, revenues will increase by 13% to around $730 million. The annual deficit will be close to $100 million by 2007 and the accumulated reserve will be depleted in 2006.

The projections reflect the following key assumptions:

Revenues

- Transit fares at existing rates for all fare types;
- Transit ridership growing at the rate of about 3% per year;
- U-Pass Program is revenue neutral;
- Fuel tax allocation increasing by 0.5 cents to 12-cents/litre April 1 2005 (no impact to consumer);
- Fuel sales volume increasing by 2% year;
- Existing property tax rates;
- Assessment base increasing by 2% per year.

Expenditures

- General goods and service inflation at 2%;
- Higher than inflation increases for fuel, electricity and insurance costs;
- Upcoming (2004) labour settlements at rates based on current estimates of public sector settlements;
- Transit service growth at 3%/year, with resulting impact on operating costs;
- OMR roads funding growing with inflation and assumed MRN growth;
- Replacement of assets at the end of their useful life;
- Long term borrowing at 6.75%;
- Continuation of current policy of financing all capital projects through debt.

Under the *GTA Act*, annual expenditures cannot exceed annual revenues (including the previous year's accumulated surplus). As noted earlier, annual deficits are projected to grow from $25 million to close to $100 million by 2007. The accumulated surplus is reduced to a minimal level in 2005 and is depleted in 2006. Increased revenues are required to achieve the benefits of the proposed transportation improvements.

2005 – 2007 Additional Revenue Requirements

	2005	2006	2007
Expenditures			
Operating Costs	558	582	606
Debt Service Costs	155	185	223
Total Expenditures	**713**	**767**	**829**
Revenues (no fare or tax increases)			
Transit	263	271	285
Taxation			
Fuel	268	276	282
Property	129	131	134
Hydro	16	17	17
Parking	12	12	12
	425	436	445
Total Revenues	**688**	**707**	**730**
Annual Deficit	**(25)**	**(60)**	**(99)**
Accumulated Surplus/(Deficit)	**22**	**(38)**	**(137)**

Note: *Revenue figures do not include toll revenues for FRC.*

Funding Principles

The following principles have guided the development of the recommended funding strategy:

- The package should represent a balance between user fees and general taxation, reflecting individual and general benefits;
- The package components should be based on sources available under the *GTA Act*;
- There is strong potential for senior government funding but will likely not fully materialize before 2007;
- The package should fully fund the 2005 - 2007 Plan (no deficit in any one year);
- Fare increases should be at the rate of inflation, to protect transit ridership;
- The accumulated reserve should be at a sufficient level to mitigate risk and allow for the creation of a capital reserve.

Funding Proposal

Increases to transit fares, property taxes, and the implementation of parking charges are all recommended. Transit fares are a user fee and the

proposed increase will address inflation since 2002. Many people in the region believe that transportation is provides social benefits much like health and education and that it should be funded, in part, by a general tax; the property tax is a form of general taxation available to the region. Parking charges have been identified as a means of influencing travel demand and land use development. The most recent GVRD annual report on the *Livable Region Strategic Plan* (LRSP) noted a trend over the past decade of growth in office space outside of the town centres in the growth concentration area. Remote office parks and commercial malls are a challenge to serve by transit and require additional road operating and maintenance charges. Parking charge revenues will help offset current and future operating costs in suburban communities as well as providing incentives to minimize the amount of "free" parking offered in future development projects.

It is assumed that new rates would be implemented in 2005 and that approximately $92 million will be raised in 2005 by these revenue sources. This is projected to grow to $99 million by 2007, reflecting ridership and taxation base growth.

Proposed New Revenue Sources ($ millions)

	2005	2006	2007
6% increase April 2005	11	11	15
Parking charges	25	25	26
Property tax increase ($61 for avg. home)	56	57	58
Total Revenue Increase:	**92**	**97**	**99**

Fares

As noted earlier in this paper, the GVTA has the largest service area of any urban transit system in Canada. To reflect this geography and the diverse services offered, the fare system is based on a series of zones that generally reflect the distance travelled and the availability of services that have 'premium' qualities, such as the West Coast Express. Most full-fare cash fares are presently $2, $3 and $4, depending on the number of zones travelled.

Historically, the fare system was developed, in part, to ensure affordability for those on low incomes. In April 2002 monthly pass prices were frozen while cash fares for transit users were increased. This resulted in a shift toward monthly passes, which increased transit usage.

In September 2003, 60,000 students at UBC and SFU were issued inexpensive U-Passes, providing universal access across the regional transit system. Preliminary ridership counts indicate a significant ridership increase due to the U-Pass. The increased use of passes on the transit system has resulted in a decrease in the system's average fare from $1.75 in 2002 to $1.70 in 2003 and a projected value of $1.68 in 2004.

Discounted fares are available to children, high school students and seniors. In addition, zone fares are only in effect on weekdays during the peak periods. At all other times (i.e. evenings, weekends and holidays), passengers can travel throughout any part of the region on a one-zone fare. This includes trips between areas as distant as Lions Bay and Langley.

Although there are some programs to address affordability, the level of transit fares continues to be of concern to many residents and also to the GVTA. Dealing with affordability presents a considerable challenge for the GVTA, because some of the issues may relate more to broader social concerns, such as poverty and income levels, than to transportation. These concerns are better addressed by senior government as part of a broader social agenda, since the GVTA has limited powers to lessen the financial burden for some passengers without requiring cross-subsidies from other passengers.

Nevertheless, as part of the Outlook, it is proposed that several specific actions be pursued to further affordability and to address a number of other ongoing fare issues:

- **Retain Government Transit Pass Program –** The GVTA will continue to press for seniors' transit and other government funded passes for low-income seniors and the disabled to remain a provincially funded program. The province planned to abandon the seniors' program, but reinstated it after public concerns were raised in 2001.
- **Expanded U-Pass –** By the end of 2007, it is proposed to extend the U-Pass Program to more post-secondary institutions in the region, as well as examining the potential for community U-Passes in new developments such as UniverCity at SFU.

- **Fares Increase only with Inflation** – It is planned that for the next decade fares will only increase with inflation – in effect they would remain constant in real terms.
- **Transfer Validity for Long Trips** – Some three-zone trips cannot be completed within the current 90-minute transfer validity. To allow these trips to be made, adjustments to the electronic fareboxes will be investigated.
- **Fare Evasion** – Fraud places a greater financial burden on paying passengers. Actions will be taken in the period to continue to monitor and enforce the payment of fares to limit evasion and minimize the cost to other users and taxpayers alike.
- **Fare System and Policy Review** - A broad review of the whole fare system will be made concurrent with the planned introduction of 'SmartCards' later in the Outlook period. The introduction of electronic 'smart' fare media will allow a much more refined system of fares that is better able to reflect features such as actual distance travelled, time of travel, while providing added savings to regular users, etc. The business case for Smart Cards should be ready next year.

Transit fares were last raised in 2002. One-zone cash and ticket fares were increased by 25 cents (14%) and there were corresponding increases to two- and three-zone fares. The monthly pass price was frozen. At that time it was stated that pass prices would be changed after a broader review of the fare system. When that review was completed, no major change to the fare system was made, and pass prices remained frozen.

By 2005, pass prices will have been fixed for five years, while cash and fare saver prices have been increased twice. The 2005-2007 funding strategy proposes an increase to transit fares to generate the equivalent of a 6% increase in revenue over the three-year period. The increase represents the cumulative impact of three years' inflation 2002 – 2005 and would provide $41 million over the three-year period.

It is proposed to complete the consultation process on the specific of the changes to fares in 2004. In addition to extending the 90-minute limit on fares the timing and relative increases in pass and cash fares will be examined. This examination will consider and balance the operational and customer impacts of the use of nickel and dimes and the relative value of pass prices.

Cash transit fares are currently lower than those in Ottawa, the Greater Toronto area (GTA), and Montreal. For example a two-zone trip is $3.00 in the GVRD while the equivalent trip is $3.85 in the GTA, $3.50 in Ottawa, and $5.00 in Montreal.

Parking Charges

Under the *GVTA Act*, there are two basic types of parking tax available for use:

- **An "Ad Valorem" tax on Parking Fees** – Currently, the GVTA receives 7% on fees paid for parking in the region. The majority of parking for which fees are paid is within the City of Vancouver, particularly in the downtown area. This 7% currently amounts to approximately $11.5 million annually. The GVTA has the authority to raise this tax by a further 14% to 21%.

  Any increase in the tax would have some impact on businesses in the downtown core. It may result in a slight reduction in the supply of parking made available, push some businesses to relocate to locations with free parking, and reduce competitiveness with retail outlets with access to free parking. On the other hand, it may encourage some commuters to switch to public transportation with benefits to the region's air quality and reduced congestion.

- **Area/Stall Parking Tax** - The *GVTA Act* provides the GVTA with the authority to assess a parking tax on non-residential parking lots on the basis of either the parking spaces or surface area devoted to parking. The GVTA may determine which areas the tax will be assessed and may vary the rates by location. A requirement of introducing this tax is that a tax assessment process and roll be developed, with a process for the review of assessments.

  This tax may have less direct immediate impact on travel demand, but greater benefits for achieving the land use goals in the LRSP plan by reducing excess parking and encouraging businesses and offices to locate near public transit. This tax will be distributed more evenly across the region.

In addition to being a source of revenue, parking taxes can also help to influence the way the transportation system is used. A properly implemented parking tax can reduce road congestion and improve travel times in some of the most heavily trafficked areas of the region, providing benefits for motorists and essential goods movements. It can also increase transit ridership, with benefits to air quality and the environment.

There are a number of considerations in choosing the appropriate mix and structure of such taxes.

Increasing the tax rate on fee-paid parking is easy to accomplish administratively. However, there are some equity concerns. Since most of the fee-paid parking in the region is in the City of Vancouver, particularly downtown, it has the potential to impact businesses, residents and visitors in those areas disproportionately. In the past, concerns have been raised about reduced competitiveness of retail businesses and commercial space in the downtown area, particularly if parking costs are relatively higher.

The parking area/stall tax may be a more equitable means of assessing a parking tax; however, it would take more time to implement and carries administrative and implementation costs. It may be possible for the area tax to have rates vary by location, accessibility, level of transportation investment (such as new rapid transit, roads, etc.) and the availability of special programs such as U-Pass. However, implementation would require the establishment of a parking assessment roll, which could take up to a year to develop, as well as ongoing administration costs. The feasibility and cost of establishing such a roll have yet to be detailed.

It is proposed to seek net additional revenues of $25 million commencing in 2005 from parking sources to help fund the Three-Year Plan. It is proposed that this be derived by the introduction on an area or stall tax. This recommendation is based on a balanced consideration of the results of the consultation process; technical work undertaken by consultants; and the equity and transportation impacts of each of the two parking sources.

To make the implementation of the area or stall tax practical, the Province would need to implement, by July 2004, legislative and regulatory changes necessary for the GVTA to implement, enforce, and collect parking area/stall charges, exempt certain properties from parking area/stall taxes, and assess different rates of parking area/stall taxes against different types of properties.

Parking rates in the Vancouver CBD are lower than in downtown Toronto and Montreal.

	Vancouver		Toronto		Montreal	
	Base	Prem	Base	Prem	Base	Prem
Hourly	$2	$3	$4	$10	$6	$6
Daily	$10	$13	$14	$20	$12	$18

Property Tax

The Fall 2001 funding consultation resulted in a 0.9% or $22 increase to the average homeowner's property tax bill and generated $20 million to fund transportation improvements. The GVTA component of the average $2,500 residential property tax (based on an average assessed value of $309,000) is $89. Recent market research indicates that there is a growing realization that an effective transportation system benefits all residents, and that some form of general taxation is an appropriate funding source. The only general taxation source available to the GVTA is property tax.

The proposed $56 million increase to GVTA property tax equates to an average impact of $61 per homeowner, a 2.5% increase to the average property tax bill. This is based on the current average residential value of $309,000. Specifically, the impact to the residential property owner of the proposed increase would be $19.75 per $100,000 assessed value. For example, a homeowner with a $275,000 property would have a $49 increase to the GVTA component of his/her property tax bill.

Commercial properties would be impacted as well, based on the rate relationship defined by the *Municipal Act*. Commercial properties pay 2.5 times the residential rate.

The GVTA component of property taxes is low compared to the transportation component of property taxes in other municipalities. For example, in Toronto the transportation component is $272, or 9% of the average residential property tax bill. The transit component of Ottawa property taxes is $408, or 13% of the average residential property tax bill.

Impact of Funding Package

The proposed funding package will increase revenues by $92-$99 million annually. By 2007, revenues grow to $830 million, a $183 million (28%) increase over the 2003 budget.

2005-2007 Projections with Proposed Funding Package ($ million)			
	2005	2006	2007
Expenditures	713	768	830
Revenues			
• Transit Revenue	274	286	301
• Taxation	506	519	529
Total Revenues	780	805	830
Annual Surplus/(Deficit)	67	37	0

The proposed revenue package provides full funding for debt servicing for the RAV project, consistent with our existing accounting policy. Borrowing for the early stages of the NES rapid transit project ($75 million assumed cash flow by the end of 2007) is also accommodated.

Revenues are projected to exceed expenditures by $67 million in 2005 and $37 million in 2006. These additional funds, when added to the anticipated 2004 year-end accumulated surplus of $47 million, are sufficient to create a capital reserve. The three-year plan maintains an accumulated operating reserve equivalent to 10% of the operating budget with the balance of surplus directed to a capital reserve. As outlined on the table below the accumulated operating reserve at the end of the plan period will be $83 million and the capital reserve will reach $68 million. The capital reserve will provide a source of funding for the capital program beyond 2007. The operating reserve provides a "cushion" against unanticipated revenue shortfalls and/or expenditure increases.

Accumulated Reserves ($million)			
	2005	2006	2007
Capital Component	34	68	68
Operating Component	79	83	83

Funding the Program Beyond 2007

As outlined earlier in this chapter it is assumed that a program of sustained federal funding would reduce the funding gap in the years beyond 2007. It is also assumed that the nature and scope of the federal program will be known in the 2005 to 2007 time frame. When this information is available, the GVTA will re-estimate its funding requirements to complete the Outlook program. It is anticipated that this will take place not later than mid 2006.

The transportation investments committed in the three-year plan period generate additional funding requirements beyond 2007. It is estimated that by 2013 increased revenues of approximately $137 million would be required to fund the commitments made in the three-year program. This assumes infrastructure will continue to be replaced at the end of its useful life, that the RAV and NES rapid transit lines would be built, but there would be no other expansion of programs beyond 2007. There would be no further purchases of expansion vehicles. Annual allocations for major roads projects and the bike program would cease.

If there is no federal funding forthcoming GVTA would continue to raise transit fares with inflation, to generate an additional $40 million by 2013, and double parking charges in 2008. The funding gap after these revenue measures is $35 million (3% of the 2013 projected $1.1 billion annual budget). The gap would be reduced to $24 million by deferring the replacement of SkyTrain Mark I vehicles. The remainder of the gap should be viewed as within the range of a reasonable estimation error. In any case the gap would be identified well in advance through the GVTA's regular three year plan development cycle and could be closed through tight fiscal management, the normal lag in capital spending, and potentially revisiting some discretionary replacement and maintenance capital.

While this is the established fall-back position, the GVTA would consult on other regional revenue measures such as a vehicle charge.

A lack of federal funding in the period beyond 2007 would create a greater funding challenge to implement all the programs identified in the ten year Outlook. The funding gap would be $260 million in 2013 assuming the 2005 funding measures are implemented. If this scenario comes to pass a new regional revenue

source would have to be utilized, in addition to raising transit fares with inflation.

A portion of the funding gap could be addressed through extending the Outlook implementation period. However a key commitment of the current plan is to complete the rapid transit extension to the North East Sector and Richmond/Airport and expand the bus fleet to 1542 vehicles to optimise the investment. The funding gap for this "core commitment" is $230 million.

The "core commitment" funding gap would be reduced by approximately 50% with the following expenditure and revenue measures:

- Deferring the SkyTrain Mark I vehicle replacement to beyond the Outlook period;
- Reducing the Bike Program capital allocation from $6 million/year to $3 million/year after 2007;
- Reducing the major road project allocation from $35 million/year to $25 million/year after 2007;
- Extending RAV and NES amortization periods;
- Doubling parking charges;
- Fare increases at inflation.

The remaining $112 million gap would have to be funded from regional sources. The consensus view identified through this consultation process would be to implement some form of road user charges such as a distance-based vehicle charge or road tolls.

7. SUPPORT FOR REGIONAL OBJECTIVES

The *GVTA Act* specifies that the Strategic Transportation Plan must set out the relationship between the major actions planned by the authority and the regional growth strategy, air quality objectives and economic development of the transportation service region, i.e. the GVRD. If fully pursued, the Three-Year Plan and 10-Year Outlook will be able to support all of these regional objectives, as described in this section.

Regional Growth Strategy

The Three-Year Plan and 10-Year Outlook objectives and actions explicitly support the *Livable Region Strategic Plan* (LRSP). By providing a more balanced transportation system, with improvements to roads, transit, cycling, pedestrian, marine and other forms of transportation, policy support is given to the overall LRSP approach of increasing transportation choices. Completion of the RAV line from Richmond City Centre and the NES line to Coquitlam City Centre supports the longstanding LRSP goal to connect regional town centres with rapid transit. The Three-Year Plan commits to a process for the GVTA to develop a regional Transportation Demand Management (TDM) strategy, in partnership with the GVRD and the region's municipalities.

The Three-Year Plan and 10-Year Outlook support the land use policies of the LRSP in its allocation of transportation and transit resources. Specifically, through the provision of new rapid transit lines, more frequent local bus services in transit-conducive areas and the continued expansion of community shuttle services, the LRSP policies of concentrating growth at multi-use activity centres and high-density development corridors, especially within the designated Growth Concentration Area, are supported. These new transit services will be able to complement regional and municipal land use plans for shaping and concentrating urban growth. In addition, the GVTA will work with the GVRD and the municipalities to promote better co-ordination of transportation and land use planning, especially in the areas of employment location and promoting transportation alternatives to the private automobile.

An update to the *Livable Region Strategic Plan* is planned to be initiated by the GVRD in early 2004, and is expected to be completed by late 2004 – early 2005. A key input to the LRSP Update will be the GVRD's Sustainable Region Initiative (SRI), which presents a vision for an environmentally, economically and socially sustainable region.

It is also notable that a new long-range transportation plan will be developed by the GVTA, starting in 2004. The new long-range plan will replace *Transport 2021*, the existing long-range transportation plan. The new long-range transportation plan will be developed within the policy framework of the LRSP Update.

Air Quality

The Three-Year Plan and 10-Year Outlook clearly support the region's *Air Quality Management Plan* (AQMP) by providing a more balanced transportation system than currently exists. Implementation of the proposed programs would see a significant boost to trips made by transit, cycling and walking. In particular, major expansion of the bus service and the rail network, and the implementation of a regional parking management strategy, will shift numerous travellers from the automobile to transit. This will help reduce emissions of both local air contaminants and greenhouse gases.

Overall, it is estimated that there would be a reduction of up to 125 million kilograms of greenhouse gases due to less traffic.

There are a number of other significant initiatives the GVTA will undertake to improve air quality in the region:

- Replacing the region's zero emission electric trolleybus fleet with new, state-of-the-art electric trolleybuses rather than diesels;
- Pilot test diesel electric hybrid buses, which reduce some air pollutants and also reduce GHG's by up to 50%, as an alternative to diesels for fleet expansion and replacement needs;
- Investigate the feasibility of other alternative fuels for GVTA transit buses;
- Introduce an alternative fuel vehicle program for GVTA, GVRD and other fleet vehicles;
- Examine the impact of the AirCare Program and determine the need for ongoing programs after

2006 to ensure that emissions can be further reduced;

- Re-instate the ACOR (AirCare On Road) emissions testing program for trucks and buses;
- Ensure that all new and replacement fossil-fuelled buses meet the 2007 emission standards.

Economic Development

The Three-Year Plan and 10-Year Outlook objectives and actions are intended to explicitly support economic development in the region. First, the proposed level of transportation investment will stimulate economic activity in the form of increased employment, improved local expertise and growth in economic output. Second, the provision of a balanced transportation system, comprised of a multi-modal transit system and a well-maintained road network, will ensure the efficient movement of both people and goods. The projected reductions in travel time and ultimately the cost of personal, business and public transportation will be beneficial to existing and future businesses and the region's residents. Finally, strategic investments in transportation infrastructure will be able to ensure Greater Vancouver's economic role as a gateway to the Pacific Rim and to North America is maintained, if not improved.

Transport 2021 estimated the cost of congestion (relative to free flowing traffic conditions) to be $110 million annually, as of 1993. In 1999, the BC Trucking Association (BCTA) estimated the cost to the trucking industry alone at $500 million annually. Some recent estimates place this in the range of $750 million to $1 billion today.

The 10-Year Outlook package would improve conditions for the regional economy in general and goods movement in particular by:

- Strategically expanding road facilities, including providing key "missing links" in the transportation network;
- Working with the province to determine the feasibility and implementation of measures such as dedicated goods-only lanes so that trucks avoid congestion by separating them from general traffic;
- Expanding bus and rapid transit service to ease traffic congestion by encouraging drivers to use alternative means of transportation in key markets.

The Three-Year Plan and the 10-Year Outlook are very supportive of the efforts of the Greater Vancouver Gateway Council (GVGC) to deal with goods movement in the region. The GVTA has been working with the GVGC to recognize those roadways critical to goods movement. These are outlined in the GVGC's Major Commercial Transportation System (MCTS), which identifies essential roads and other links to seaports, airports, and major rail or truck terminal facilities.

The implementation of projects along certain corridors, such as the North Fraser Perimeter Road, would allow for much needed additional capacity for commercial goods movement, or provide new routes that would virtually eliminate neighbourhood infiltration by truck traffic. Such enhancements would give more priority to goods movement than currently exists. Combined with these improvements, the proposed actions to allocate a greater priority to trucks on major roads will further enhance goods movement and boost the regional economy.

8. CONCLUSION/NEXT STEPS

This document presents a three-year strategy within the context of a 10-year outlook vision to work towards over the next decade and translate that vision into practical actions. It presents a balanced mix of both road and transit investments that will lead to less congestion, while offering a broader choice for personal travel than is currently available. In particular, there is an explicit emphasis on goods movement and significant expansion of transit options. New transit initiatives and improvements will offer such a broad and high-quality range of services, that many suburban residents will prefer transit to the private vehicle.

The overall approach would move the transportation system firmly in the direction of supporting the *Livable Region Strategic Plan* (LRSP), thus advancing the economic, environmental and social sustainability of the region. The projects will require significant investment and it is proposed that the Three-Year Plan be adopted, while the longer-term requirements are addressed through dialogue with senior government and the development of longer-term plans in 2004 and 2005.

However, given the scores of projects and the numerous issues surrounding them, it is also critical to initiate work on a new Long Range Transportation Plan (25-30 year), in concurrence with the Greater Vancouver Regional District's (GVRD) update of the LRSP, and to address the policy issues summarized in this discussion paper. Moreover, it is also noted that a tangible and substantive role for the federal government must be established before the end of the decade, for the program to be affordable.

If the Three-Year Plan strategies are accepted, the Three-Year Plan will be presented to the GVTA Board as an amendment to the existing Strategic Transportation Plan. The STP amendment will guide the development of the regional transportation system to 2007.

APPENDIX A

STP AMENDMENTS/ACTIONS TO 2007

NEW BUS SERVICES

More Service in Metropolitan Core

- Increase frequency on high demand routes in the core communities;
- Introduce new routes to serve new developments in the core

Higher Frequency in High Demand Corridors

- Expand 10 minute peak period routes to suburban municipal and regional town centres and in higher density corridors linking these centres.

New Regional Centre Connecting Services

- Introduce new suburb-to-suburb links connecting Burnaby and North Vancouver, Maple Ridge and Langley via the new Fraser River Crossing, and Coquitlam and Surrey.

Rapid Bus Service (B-Line)

- Introduce one new rapid bus on a high density urban corridor.

Community Shuttles

- Expand Shuttle services across the region to enhance service frequency and area coverage in suburban areas, and to continue to improve cost efficiency;
- Provide all sub-areas of the region with Community Shuttles by 2007.

Expand Services for U-Passes

- Implement bus service improvements for existing SFU and UBC U-Pass Programs and new U-Pass programs introduced between 2006-7.

Expand NightBus Services

- Expand NightBus service in high demand corridors subject to the results of evaluating the current pilot project.

New Inter-Regional Services

- Negotiate inter-regional transit service improvements, subject to appropriate funding agreements.

HandyDART

- Add 3% service expansion per annum with 24 more vehicles by 2007;
- Complete an accessible transit Strategic Plan by 2006.

Area Transit Plans

- Complete a UBC/City of Vancouver plan by early 2005;
- Complete Area Transit Plans for South of the Fraser and Richmond by 2007.

BUS FLEET AND FACILITIES

Existing Buses

- Replace electric trolley fleet with new trolleys between 2005 and 2007;
- Replace 134 diesel buses with new buses;
- Replace 110 HandyDART vehicles;
- Replace 3 Community Shuttle vehicles;
- Re-introduce 50 Compressed Natural Gas buses and replace older diesel buses.

New Buses

- Expand bus fleet from approx 1,200 in 2003 to approximately 1,400 by 2007.

Reducing Bus Emissions

- Start to acquire/evaluate a range of vehicle types as part of the fleet program, including hybrid combustion/electric vehicles.

Bus Facilities

- Determine the optimum service delivery strategy for all North Shore services in 2004;
- Build additional bus storage capacity on North Shore in 2007 to replace North Vancouver operating depot;
- Replace the Oakridge Transit Centre in 2005 with a new facility in the City of Vancouver;
- Begin construction of a new heavy maintenance facility.

RAPID TRANSIT

Richmond-Airport-Vancouver

- Complete consortium selection processes, e.g. "Best and Final Offer" (BAFO) in 2004;
- Initiate construction in 2005;
- Commit a total of $300 million[14].

Northeast Sector

- Undertake municipal and community consultation and select preferred route and technology combination in early 2004;
- Complete detailed design, consultation and commence construction as soon as possible;
- Commit $400 million to the project;
- Seek provincial and federal contributions of at least $170 million each for the NES line.

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[14] *$372 million with inflation and interest during construction*

Expo & Millennium Lines

- Work with the province to complete Vancouver Community College station on the Millennium SkyTrain line (2005);
- Provide a new Dunsmuir Street entrance to Granville Station (2005);
- Increase SkyTrain capacity by 5% at peak periods to alleviate crowding by 2005;
- Continue to upgrade lighting, access and facilities at SkyTrain stations during the 2005-2007 period.

Rapid Transit – west from Commercial Drive

- Undertake studies by the end of 2005 of alternatives to identify the preferred option and phasing for rapid transit west from Commercial Drive;
- Prepare a plan for financing the extension.

West Coast Express

- Add new stations in the Albion area of Maple Ridge and North Burnaby by the end of 2007;
- Expand park and ride facilities at Maple Ridge Way and Port Coquitlam;
- Acquire a spare WCE locomotive to replace the currently leased spare locomotive;
- Expand TrainBus service in the mid-day and weekends;
- Introduce bus service from Langley, using the new Fraser River crossing to Maple Meadows Station;
- Provide bus connections to new North Burnaby Station;
- Determine the need for a possible 6th WCE train, within the context of the results of the NES Rapid Transit studies.

King George Busway

- Begin planning and design work on the King George Busway and seek funding contributions from senior government.

MARINE PASSENGER SERVICES

SeaBus

- Examine condition of existing vessels and prepare budget for possible refurbishment;
- Commission the design for a third SeaBus and possible replacement vessels.

Burrard Inlet Ferries

- Complete feasibility of Burrard Inlet ferry services with 75-125 passenger vessel capacity;
- Introduce up to two new Burrard Inlet ferry services, depending on their financial and technical feasibility.

Fraser River Ferries

- Review and establish feasibility of passenger marine services along/across the river between key destinations;
- Determine the future of the Albion Ferry in 2004.

NEW TRANSIT SERVICE DESIGN GUIDELINES

- Implement new Transit Service Design Guidelines starting in 2004;
- Adjust transit service to respond to the new guidelines to make service simpler, more frequent, reliable and convenient, comfortable and efficient.

ROADS

Major Regional Capital Projects:

- Build a third crossing of the Fraser River between Langley and Maple Ridge with the estimated cost of $600m to be paid 100% from tolls;
- Subject to municipal approvals and agreements, cost-sharing with other governments where possible and, to the extent permitted under legislation, invest up to $236m in the following projects:
  - North Fraser Perimeter Road
  - Fraser Highway Widening
  - Dollarton Bridge Twinning
  - Coast Meridian with overpass to Kingsway
  - 204th Street Overpass
  - Main Street Widening (North Vancouver)
  - Murray-Clarke Connector
  - Extension of David Avenue to connect with the Coast Meridian project
- Seek cost-sharing for all major capital projects from the provincial and federal governments and other sources where applicable.

Identifying Future Regional Road Projects

- As part of the process to prepare the long range (25 – 30 years) transportation plan and in accordance with the current or approved and, updated Strategic Transportation Plan and the regional growth management strategy, identify and prioritize other potential road investments for the 2008 – 2013 period, in partnership with senior government and member municipalities;

- Apply the proposed updated TransLink Transportation Evaluation Guidelines to evaluate future candidate projects.

Bridges & Structures:

- Continue to rehabilitate and maintain GVTA-owned bridges (i.e., Pattullo, Knight Street, and Westham Island) - $32.5 million;
- Consider the expansion of the Major Road Network (MRN) Capital Program, or other appropriate funding programs, to include structures on the MRN within the broader context of GVTA's roles and responsibilities.

Minor Regional Road Capital

- Allocate cost-share funding of $60 million for localized road upgrades, leveraging a total of $120+ million of improvements;
- Invest in local projects including widenings, intersection improvements, traffic signals, pedestrian and bicycle facilities, structures and transit related improvements;
- Review road capital eligibility criteria to consider providing municipalities greater flexibility to redirect funds to both cycling and transit priority where a regional benefit can be demonstrated;
- Review jointly with municipal partners, the overall efficiency of the MRN at key locations and identify opportunities to improve network performance;
- Develop, with municipal partners, several MRN corridor management plans (including a comprehensive review of the Barnet-Lougheed Corridor, from Port Moody to Pitt Meadows, to identify capital needs in this area post 2007);
- Develop a High Priority Vehicle Plan and implementation strategy jointly with municipal partners and the province;
- Commit approx. $27 million annually, based on $12,000 per lane-km of MRN plus inflation (e.g. consumer price index - CPI), to fund the operations, maintenance, and rehabilitation of the MRN in each municipality;
- Undertake a review of the Operations Maintenance and Rehabilitation (OMR) funding provided to municipalities to determine if adjustments are required.

PROVINCIAL ROAD PROJECTS

- The GVTA will work with the Province on the Gateway and other project planning and policy development programs, on the basis that continued involvement or support by the GVTA of specific project approvals or implementation, for those projects outside the scope of this plan or the LRSP, would require an amendment to this Strategic Transportation Plan;
- In working with the province on their development of road projects, GVTA will place a priority on the South Fraser Perimeter Road and improvements at the Pitt River crossing to support the Fraser River Crossing;
- The GVTA will seek to establish a collective planning process with the province of both the Major Road Network and the Provincial Highway System to ensure that both systems support the *Livable Region Strategic Plan.*

TRANSPORTATION DEMAND MANAGEMENT

Road User Priorities

- Develop agreements with the province and municipalities to develop and implement a process to determining High Occupant Vehicle (HOV) lane needs and regulations for all HOV facilities in the region, giving due consideration to the fact that needs may vary across the region and between facilities;
- Identify and prioritize road user priorities as part of the development of the new long range transportation plan;
- Include practical means to provide priority treatment to both HOV and High-Priority Vehicles, goods vehicles and buses ahead of single-occupant vehicles;
- Ensure that all major capital projects funded in whole or in part by GVTA include TDM measures, unless such measures are impractical.

Transit Priority Measures

- Commit $3 million in annual funding for transit priority (signals, bulges, lanes, etc.) to improve speed and reliability of bus services;
- Develop a Regional High Occupancy Lane /Transit Priority Implementation Strategy by December 2004, with extensive deployment by 2007;
- Complete queue jumper lanes at the Port Mann and Second Narrows Bridges by 2007;
- Start work on northbound queue jumper lanes on Highway #99;

- Work with municipalities, especially the City of Vancouver, where the need is greatest, to significantly expand bus lanes and other transit priority measures;
- Target an expansion of transit priority measures (e.g. bus lanes) to be in place on the following routes/streets by December 2005:
  - Hastings
  - Broadway
  - Burrard Street
  - Main Street
  - 41st Avenue
  - Willingdon Avenue
  - North Road – Clarke Road
  - St. Johns Street
  - Guildford Way-Ioco Road
  - Mountain Highway
  - Cotton Drive – Main Street (N. Vancouver)

Commuting Options Program

- Work with employers through the OnBoard program to identify, promote, and facilitate the implementation of sustainable transportation choices at the employer's worksite such as:
  - Transit (Employer Pass Program)
  - Ridesharing (carpooling, carpooling)
  - Commuter Car Share (Station Car)
  - Cycling / walking
  - Teleworking
  - Shuttle buses
  - Parking management strategies
  - Office Relocation

Employer Pass Program

- Continue to promote the Employer Pass Program, which provides a 15% discount on annual transit passes to organizations enrolling with 25 or more employees.

Ridesharing (carpooling, vanpooling)

- Work with Jack Bell Foundation (JBF) RideShare to significantly increase the number of cars and vanpools operating in and around the GVRD. Measures to include:
  - Development of annual marketing plan
  - Target rates for annual program growth
  - Annual customer satisfaction surveys
  - Annual operational reviews

Commuter Car Share (Station Car Program)

- Institute a pilot program in 2004 to provide commuters who live or work near to a SkyTrain station with a means to get to and from home and work via shared vehicles and conveniently located SkyTrain stations.

Granville Mall

- Work with the City of Vancouver to redesign Granville Street downtown to improve transit and pedestrian efficiency and comfort.

Pass Programs

- Expand the U-Pass Program to all existing public post secondary schools now in the FastTrax Pass Program subject to student referenda;
- Introduce a pilot Community Pass Program similar to U-Pass Program for up to two sustainable community areas;
- Provide better customer information through enhanced internet, cell phone and personal digital assistant (PDA) services, as well as expanded real-time information at transit facilities.

Urban Transportation Showcase

- Implement the Sustainable Region Showcase for Greater Vancouver that includes:
  - Main Street Transit Corridor Development
  - Central Valley Greenway Cycling Facility
  - Development of 'transit villages' around Broadway, Metrotown and Surrey Central Stations
  - Pilot test TravelSmart residence-based trip reduction program, providing individualized travel information

Regional Parking Strategy

- Work with the GVRD and municipalities to develop a regional parking strategy by no later than July 2004 for implementation in 2005, that includes a review of:
  - Bylaw provisions for the minimum and maximum parking requirements for new or renovated developments throughout the region
  - Regulations for managing off-street parking, including preferential parking for car/vanpools and motorcycles
  - The regulation of on-street parking on major arterials
- Seek legislative amendments to the *GVTA Act* to make the application of the existing provisions

regarding stall or area parking taxes practical and to allow issues, such as enforcement, collection and exemptions to be readily addressed;

- Introduce an area or stall based parking tax for non-residential parking in January 2005.

Regional Tolling Policy

- Begin work in 2004 to define a detailed tolling policy for the region that allows the flexibility for the region to eventually evolve to a congestion pricing/tolling system for the entire region;
- Work to achieve municipal and provincial consensus on the tolling polices to be applied to any facilities in the region by 2006;
- Explore other forms of road-user fees, including vehicles charges, as necessary.

Development Review

- Develop a process, in consultation with municipalities and the GVRD, to define and review 'major developments', as provided for in the *GVTA Act*.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

- Install automatic vehicle location equipment for buses operating on the #97B Line and #99 B-line services to improve reliability;
- Install automatic vehicle location technology for new trolley buses to improve reliability;
- Install automatic passenger counters on 15% of bus fleet to improve data for scheduling and planning of services and to improve reliability of service;
- Prepare smart card business case study to review benefits and costs of this form of electronic payment media for implementation in 2005-2007;
- Update ITS strategic plan, prepare telecommunications plan and develop conceptual program for multi-agency traffic management centre by 2005;
- Implement projects in phased programs for ATIS, regional signal coordination and data warehousing; prepare SmartCard business case by 2005;
- Implement bus rapid transit on Main Street Priority Corridor in 2006-2007.

BICYCLES

Regional Facilities

- Invest $4, 5 and 6 million in funding annually in 2005, 2006 & 2007, respectively;
- Provide majority or 100% GVTA funding for significant regional facilities, such as the BC Parkway or Central Valley Greenway;
- Provide 50% cost-share funding with municipalities on new cycling facilities;
- Build approximately 150 kilometres of new bike facilities;
- Plan and design facilities to overcome major road or natural barriers to cyclists;
- Ensure that all major capital projects funded in whole or in part by the GVTA are reviewed for their potential to facilitate greater cycling, including the provision of cycle paths on the RAV and FRC bridges, as well as other bridge upgrades.

Programs

- Increase annual funding for information and education programs to encourage more and safer bicycling among all age groups;
- Implement an interactive web based bicycle route map by 2007;
- Distribute information on safe cycling practices to schools and work places.

POWERED TWO-WHEEL VEHICLES

- Work with the B.C. Coalition of Motorcyclists, ICBC and other agencies to determine the relative role and priority that should be given to motorcycles and other powered two-wheel vehicles;
- Review matters, such as road use priority, parking provisions, safety and emissions and noise.

PLANNING INITIATIVES

Coordinated Planning

- Encourage all levels of government to approach the transportation system in the GVRD as a coherent whole and to institute mechanisms for the coordinated planning of all facilities;
- Work towards greater coordination of municipalities to facilitate joint, municipally led Area Transportation Plans for sub-areas of the region (e.g. Northeast Sector, Langley area, North Shore), to allow a more integrated approach to sub-regional planning and establishing capital priorities.

Project Evaluation

- Update the GVTA Transportation Evaluation Guidelines, with municipalities and the Province

- Work to ensure that the evaluation of all future major capital projects by all levels of government are made on a consistent basis, including both roads and significant transit capital;
- Work with all levels of government to standardize all transportation planning practices affecting Greater Vancouver.

Transportation System Monitoring

- Develop and fully resource a monitoring program capable of providing comprehensive transport system information to guide investment decisions by all levels of government;
- Ensure that the program is adequate to support meaningful system and service performance monitoring on a regular basis;
- Implement a regular cycle of regional Origin – Destination and other surveys at intervals of no greater than every five years to monitor trends and system needs.

Goods Movement

- Continue to work with Transport Canada, the province, the Greater Vancouver Gateway Council and others to seek ways to improve the region's competitiveness;
- Ensure that the needs of goods movement and the regional economy are considered in all GVTA investments;
- Improve the means to monitor, plan and forecast for goods movement, including cross-border travel.

UPDATE TO LRSP, AQMP AND NEW LONG-RANGE TRANSPORTATION PLAN

- Work with the GVRD to review and update the *Livable Region Strategic Plan* (LRSP) within the context of the Sustainable Region Initiative (SRI);
- Develop a new long-range transportation plan (25–30 year horizon) in support of the updated LRSP and GVRD *Air Quality Management Plan* (AQMP) by 2006. This will replace the 10-Year Outlook and *Transport 2021*;
- Encourage the province and municipalities to be fully involved in, and committed to, the process;
- Target for completion is mid 2005.

AIRCARE

- Determine future for AirCare (post 2006) by no later than December 2004.

SAFETY AND SECURITY

- Increase the authority of GVTA Security through the formation of a designated policing unit that will provide the authority for drug enforcement and the power to exercise warrants;
- Increase the Security complement to provide more presence on the transit system;
- Seek provincial authority for the GVTA to collect and retain fine revenues;
- Implement a community outreach program;
- Improve lighting on the Expo line and bus loops.

FINANCE

Fares

- Increase fares to generate approximately $15 million annually. This represents a 6% increase, which will equal inflation between 2002 and 2005;
- Undertake a consultation process in early 2004 to determine the details of fare changes.

Parking

- Increase parking taxes in 2005 to generate approximately $26 million annually. Parking taxes will be generated through a tax on non-residential parking areas/stalls;
- The GVTA will, by July 2004, develop a parking tax strategy for implementing the region-wide parking area/stall tax that will include consultation with stakeholders and is based on the principle of regional equity and supports the policy directions of the *Livable Region Strategic Plan* with a target implementation date of 2005.

Property Tax

- Increase property taxes on the basis of assessments to generate $58 million annually. This increase will equate to approximately $20 per $100,000 of assessed value for residential property and approximately $52 per $100,000 of assessed value for commercial property;
- Seek Amendments to the *GVTA Act* to enhance the flexibility and collection of existing revenue increases available to the authority.

Reserves

- Maintain an operating reserve equivalent to 10% of the operating budget over the plan period.

FUNDING BEYOND 2007

- No later than mid-2006, develop a new financial strategy, which excludes further reliance on property tax;
- In the event that federal funding does not materialize, fares will continue to be increased with inflation and parking taxes or other transportation-related sources will be introduced or increased to fund the 2005-2007 commitments.